

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CV 325 / CV 721	FE (1) ENVIRONMENTAL MANAGEMENT			L=3	T=0	P=0	CREDITS = 3
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total		ESE Duration
	15	15	10	60	100		3 hours

Course Objectives	Course Outcome
1. Understand various provisions of law related to environmental protection. 2. Understand various methodologies for preparing impact assessment reports.	1. To be able to understand importance of EIA. 2. To be able to understand sustainable development.
Mapped Program Outcomes: c, f, h, j, k	

UNIT-1:

Development and Environment, need for EIA, concept of EIA, elements of EIA, environmental attributes, nature of impact – primary, secondary, tertiary, short-term long-term, local and regional, reversible & irreversible impacts.

Overview of impacts –directly & indirectly measurable impacts with respect to air, noise, land, biological & socio economic environment. [07Hrs.]

UNIT-2:

Screening and scoping in EIA, terms of reference for conducting EIA, methodologies of EIA-checklists, matrices, overlays, cost benefit analysis & adaptive environment and management, networks.

Framework of EIA -scope of EIA, baseline data collection, prediction of impacts, evaluation of impacts, Battelle environmental evaluation system, environmental management plan, greenbelt development environmental quality monitoring budgetary provisions for implementing control measures. [07 Hrs.]

UNIT-3

Environmental appraisal of projects, MoEF questionnaire for environmental clearance, element of public participation & hearing, case studies on EIA of industrial, mining highway and water resources projects, critical environmental issues and formulation of strategies of EMP for these projects. [07 Hrs.]

UNIT-4:

Environmental legislation – basic concepts, critical issues, civil liability, various enactment and their provisions – Water Act (1974, 1988), forest Conservation Act (1980), Air Act (1981, 1988), Water (Cess) Act 1977, Environmental Protection Act 1986, public Liability & Insurance Act, Motor Vehicle Act 1989, Rules for Hazardous waste handling, storage & disposal, environmental tribunal & its functions. Implementation mechanism of environmental legislation, Role of State & Central boards of pollution control, local government social action groups, and environmental policies. [06 hrs]

UNIT-5

Environmental Audit-definition, concept of EA, types of environmental audit benefits of environmental audit, scope & objectives, environmental statement, procedural aspects of conducting environmental audit, pre-audit phase, on-site audit phase & post-audit phase, water audit, raw material audit & energy audit, health & safety audit, conservation of energy and water, waste minimization, economic benefits of environmental audit. [06 Hrs.]

UNIT-6:

Sustainable development & environmental management, carrying capacity based development planning process, regional EIA and preparation of regional EMP, concept of carrying capacity, assimilative and supportive capacity, development of action plans for critical environmental education programmes. Environmental Management in India.

Resource Management: Types of resources-terrestrial soil resources, minerals, plants & animals (biotic) resources marine, fresh water, air & bio-energy resource, resource utilization, renewable and non-renewable resources, optimal use of resources, depletion of resources – causes & effects.

Human Resources – importance of socio-economic studies in development projects. [06 Hrs.]

Text books:

- 1] John Rau & Wooten, Environmental Impact Assessment, Mc Graw Hill.
- 2] W.F. Canter, Environmental Impact Assessment, McGraw Hill.
- 3] Harry W. Gehm, Jacob I. Bregman, Handbook on pollution Control Acts, Central Pollution Control Board, New Delhi.
- 4] R.K. Sapra, S.Bhardwaj, The New Environmental Age, Ashish Pub. House, New Delhi.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CV 326 / CV 722	ENVIRONMENTAL MANAGEMANT			L=0	T=0	P=2	CREDITS = 1
Evaluation Scheme	MSE-I	MSE-II	TA	ESE		Total	ESE Duration
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PRACTICALS

The practicals will be in the form of assignments which will be submitted by the students based on actual case studies.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CV 327 / CV 723	FE (1) BUILDING SERVICES ENGINEERING			L=3	T=0	P=0	CREDITS = 3
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration	
	15	15	10	60	100	3 hours	

Objectives: At the end of the course the student will be able to

- 1) Understand basic concepts of building services.
- 2) Understand various aspects of natural light and ventilation.
- 3) Understand various methods of acoustics and sound insulation.
- 4) Understand various equipments and installations used in building services.

UNIT-1:

Lighting: Day lighting, Fenestration, Daylight Factor.

Ventilation: Functions of ventilation, supply of fresh air, convective cooling, Stack effect, physiological cooling, provision for air movement; wind effect, Air flow through buildings, cross-ventilation, position and size of openings, air flow around buildings, humidity control. [09 Hrs.]

UNIT-2:

Acoustics, Sound Insulation and Noise Control: Basic terminology and definitions, Physics of sound. Behaviour of sound in an enclosed space. Requisites for acoustic environment, Acoustic design approaches for different building types, with reference to applicable standards. Selection of acoustic materials. Noise and its control, control of structure borne sound and noise from different mechanical equipment. [09 Hrs.]

UNIT-3

Electrical and Allied Installations: Different types of wiring, need of earthing, comparison between fuse and MCB, substation, types of lightening fixtures, electricity distribution in multistoried building. Building protection against lightening, Planning and layout of electrical installations within a building complex. [09 Hrs.]

UNIT-4:

Air Conditioning, Heating and Mechanical Ventilation: Requirement of air conditioning, air conditioning system, elements of air conditioning, Working and p-H diagram of vapour compression cycle, refrigeration effect, Thermodynamics of human body. [09 Hrs.]

UNIT-5

Mechanical Equipment & Installation: Installation of lifts and escalators, different types of Security and alarm systems. Hot Water Provision (Solar and Electrical), Special features required for physically handicapped and elderly, Conveyors, Vibrators, Concrete mixers [08 Hrs.]

UNIT-6:

Causes of fire in buildings: Planning considerations in buildings using non-combustible materials, staircases and lift lobbies, fire escapes, A.C. systems, Fire detection and fire fighting systems. Heat and smoke detectors, Fire alarm system, Automatic sprinklers [08 Hrs.]

Text books:

Sr. No.	Text Books	Year	Author	Publication
1	Building services		B.S. Patil	Orient Longman
2	Building Services Engineering	2007	<u>Fred Hall, Roger Greeno</u>	Butterworth-heinemann
3	Building Services Engineering	05-2007	David V. Chadderton	Taylor & Francis Group

Reference Books:

1. E.R.Ambrose, "Heat Pumps and Electric Heating", John and Wiley and Sons, Inc., New York, 1968.
2. Handbook for Building Engineers in Metric systems, NBC, New Delhi, 1968.
3. R.G.Hopkinson and J.D.Kay, "The Lighting of buildings", Faber and Faber, London, 1969.
4. William H.Seaverns and Julian R.Fellows, "Air-conditioning and Refrigeration", John Wiley and Sons, London, 1988.
5. A.F.C. Sherratt, "Air-conditioning and Energy Conservation", The Architectural Press, London, 1980.
6. National Building Code.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CV 328 / CV 724	FE (1) BUILDING SERVICES ENGINEERING			L=0	T=0	P=2	CREDITS = 1
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total		ESE Duration
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PRACTICALS

The practicals will be in the form of assignments which will be submitted by the students based on actual case studies.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CV329	FE I: Construction Techniques in Engineering		L = 3	T = 1	P = 0	Credits = 3
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Course Objective	Course Outcomes
<ol style="list-style-type: none">To study and understand the construction techniques applied to engineering construction for sub structure, super structure.To study and understand the Safety in Construction Operations.To study and understand the construction Equipment used in Engineering.	On completion of this course the students will know <ol style="list-style-type: none">The construction techniques to be used in the construction of building andStudents will know about the demolition techniques, Importance of rehabilitation, Strengthening etc.

Unit I:

Introduction to Cement And Concrete: Introduction to types of cement, grade of cement, mortar, concrete mix design, mix proportion and specification. ready mix concrete, transit mixer, pumped concrete, self-compacting concrete, porous concrete, light weight concrete, asphalt etc., use of ecofriendly materials in construction

Unit II:

Construction Equipment: Introduction To Various Construction Equipment Earth moving Machinery, Concreting Equipment, Compacting Equipment, Material Handling Equipment And Transportation Equipment.

Unit III:

Type of structure: load bearing, Frame & Composite. Components of structure.

Sub Structure Construction: - Types Of Foundation and Footings, Foundation in Black Cotton Soil, Underground and Underwater Construction, Dewatering In Shallow and Deep Excavations Using Different Methods, Introduction to Shuttering and Scaffolding and Types

Unit IV:

Super structure construction: Stone Masonry: Uses & Types, Brick Masonry: Uses & Types, Partitions, arches, lintels, stairs, introduction to formwork for various components of structure, pointing and plastering, roofs, painting, varnishing and distemping etc.

Unit V:

Importance of rehabilitation repairs and retrofitting as a part of construction engineering. Difference between the term. Strengthening of existing structures - repairs to overcome low member strength, deflection, cracking, chemical disruption, weathering, wear, fire, leakage, marine exposure, use of nondestructive testing techniques for evaluation, load testing of structure.

Unit VI:

Safety in Construction Operations– Types of hazard, safety of accidents on various construction sites such as buildings, dams, tunnels, bridges, roads, etc. safety in use of construction equipment e.g. vehicles, cranes, hoists and lifts etc. safety of scaffolding and working platforms. Safety while using electrical appliances. Explosives used.

References:

- Construction Planning, Equipment and methods – Peurifoy-Tata McGraw Hill Publication
- M.S. Shetty, “ Concrete Technology”: S Chand & Co., 6th edition, S. Chand & Company, Limited, 2008
- Sankar, S.K. and Saraswati,S., Construction Technology, Oxford University Press, New Delhi, 2008
- Sushil Kumar, Building Construction, 19th Edition, Standard Publisher Distributors 2001, New Delhi, 2001.
- Elements of Civil Engineering: By S. S. Bhavikatti, Vikas Publishing House Pvt Limited, 2004
- Basic Civil Engineering: By Dr. B. C. Punmia, Ashok Kumar Jain, Arun Kumar Jain, Firewall Media, 2003
- SP 70 (2001): Handbook on Construction Safety Practices

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CV330	FE I: Lab. : Construction Techniques in Engineering		L = 0	T = 0	P = 2	Credits = 1
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
			40	60	100	

The practicals will be in the form of assignments which will be submitted by the students based on actual case studies.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

EL316/EL708	Renewable Energy Generation Systems	L= 3	T=1	P=0	Credits=4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objectives: This subject introduce the different renewable energy sources to the students. Students get knowledge of Electric Power generation by wind, solar, small hydro.

Mapped Program Outcomes	a	c	d	e	h	i	j	k	l	m
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UNIT-1: Introduction

Fundamentals of Renewable / Non-renewable Energy Sources, Renewable Energy sources, Renewable Energy Potential in India, Renewable Energy Sources and their sustainable development.

UNIT-2: Solar energy

Principles, scope and applications, solar radiation, its measurement & prediction, flat plate collectors-design & theory, solar water heating, solar dryers, solar stills, solar cooling and refrigeration. Solar cells, thermal storage, street lighting, solar power generation.

UNIT-3: Wind energy

Introduction, Historical development, Wind energy resources, sites identification, blade element theory, aero-foil design, component of wind energy conversion system, wind turbine generator classification, and windmill and wind electrical generator, Advantages, disadvantages, economics and present status of wind energy generation systems, grid connection of wind energy.

UNIT-4: Geothermal energy and Biomass Energy

Introduction, history of geothermal resources, basics of geological process, dry rock and hot aquifer analysis, geothermal exploration, geothermal well drilling and fluid extraction, utilization of geothermal resources, geothermal heat pump, site of geothermal energy in India. Biomass energy resources and conversion processes, urban waste to energy conversion.

UNIT-5: Mini & Micro hydro-plants

Introduction, Classification of water turbines, hydroelectric system, essential components of hydroelectric system, system efficiency, advantages and disadvantages of hydroelectric system, present Indian power scenario of mini-micro hydro.

UNIT-6: Ocean Energy and renewable energy storage

Ocean thermal energy conversion (OTEC), Open cycle and closed cycle OTEC, Ocean wave energy conversion, tidal energy conversion. Introduction of Fuel cells and storage methods for renewable energy sources.

Text books:

- 1 Solar Energy : Principles of Thermal collection and storage **1994** S. P. Sukhatme and J. K. Nayak Tata-Mcgraw Hill Publishing Company Limited, New Delhi
- 2 Energy Technology :Nonconventional, Renewable and Conventional S. Rao and B.B. Parulekar Khanna Publisher, New Delhi
- 3 Renewable Energy Sources Basic Principles and Applications G. N. Tiwari and M. K. Ghoshal Narosa Publishing House, New Delhi.

Reference books:

- 1 Renewable and Efficient Electric Power Systems G. M. Masters Wiley Interscience, New Jersey
- 2 Wind and Solar Power System M. R. Patel CRC Press, New York.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

EL317/EL709	Renewable Energy Generation Systems	L=0	T=0	P=2	Credits=1
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Evaluation Scheme (% Weightage)	TA	ESE	Total	ESE Duration
	40	60	100	--

Practical based on above syllabus are to be covered.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

EL320	Applications of Electrical Machines	L= 3	T=1	P=0	Credits=3
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Mapped Program Outcomes	a	b	c	e	h	i	k	l
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Unit 1 :- Single phase transformer :- Principle, types, ideal transformer & practical transformer: operation on no load and on load, kVA rating, Calculation of full load current, open circuit and short circuit tests to determine losses (No equivalent circuit), efficiency and voltage regulation of transformers, concept of power and distribution transformer, All day efficiency. Simple numerical on efficiency.

(05)

Autotransformers :- constructional details, working, evaluation of transformation ratio, kVA rating, copper saving, applications and simple numerical.

(02)

Unit 2 :- Three Phase Transformer :- Types based on core construction and winding connections, polarity marking, vector grouping, parallel operation of three phase transformer, applications.

(04)

Unit 3 :- DC Motors :- Principle, construction, types, significance of back emf, torque equation, characteristics, starting, power flow in dc motors, losses and efficiency, speed control, applications, simple numerical.

(05)

Unit 4 :- Three Phase Induction Machines :- Principle, types, construction, concept of rotating magnetic field, concept of synchronous speed and slip, evaluation of rotor current and power factor, torque equation at starting and running conditions. Maximum torque (No derivation), torque slip curve, power flow diagram, losses & efficiency, Different methods of starting and speed control, applications.

(06)

Operation as induction generator, torque slip curve, power factor, applications.

(02)

Unit 5 :- Single phase induction motor :- Double revolving field theory, split phase principle, construction of different types of single phase induction motors, torque speed characteristics, applications.

(04)

Principle, operation and applications of :- Stepper motor, Brushless dc motor.

(02)

Unit 6 :- Synchronous machines :- Principle of operation as alternator, construction, relation between speed and frequency, power flow diagram, synchronization of alternator with infinite busbar. (03)

Principle of operation as motor, concept of torque angle, vector diagram for operation at variable load, operation with variable excitation, V and inverted V curve, starting of synchronous of motor, comparison with induction motor, applications.

(04)

Selection of Motors :- Power capacity for continuous, intermittent and short duties, Flywheel effect.

(02)

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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

EL321	Application of Electrical Engineering	L=0	T=0	P=2	Credits=1
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Evaluation Scheme (% Weightage)	TA 40	ESE 60	Total 100	ESE Duration --
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To perform Eight to Ten experiments from the following List :-

- 1) To perform load test on single phase transformer.
- 2) To perform Open and short circuit tests on single phase transformer to determine efficiency of transformer.
- 3) To perform polarity test on single phase transformer and phasing out test on three phase transformer.
- 4) To study connection of two winding transformer as an autotransformer.
- 5) To verify line and phase voltage relationships in star-star and star-delta three phase transformers.
- 6) To plot speed control characteristics of dc shunt motor.
- 7) To perform load test on three phase induction motor (mechanical loading).
- 8) To plot speed control characteristics of slip ring induction motor.
- 9) To plot V and inverted V curves of synchronous motor.
- 10) To study reversal of rotation of single phase and three phase induction motor.
- 11) To study reversal of rotation of dc shunt motor.
- 12) To study synchronous motor as synchronous condenser.
- 13) To study synchronization of an alternator with infinite bus-bar.
- 14) To study stepper motor.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ET331	Microcontroller & Embedded Systems	L= 4	T = 0	P = 0	Credits = 4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objectives:

To know about the architecture and pins of 8-bit microcontroller. To provide programming skills to the students. To learn use of microcontroller in parallel and serial communication, timer applications, various. To develop a complete 8 bit microcontroller system. To study the application of microcontroller to interface ADC, DAC, stepper motor, LCD display, and keyboard matrix

UNIT-1:

Overview of 8051 Microcontroller family, Introduction to MCS 51 family, Architecture, Memory organization, Internal RAM, Flag Register, Register Banks, SFRs , Functional pin description and various resources of MCS 51. Hardware Overview. Addressing modes, Instruction set.

07 Hrs

UNIT-2:

Assembly language programming, Loop, Jump and Call instructions, Bit manipulation, 8051 I/O programming, Delay Programs. I/O Interfacing such as LED, switches, 7segment display, keyboard matrix programming.

08 Hrs

UNIT-3:

8051 programming in C: Data types and time delay, I/O programming, Logic operations, Data conversion programs, Lookup table access. Timer programming in assembly and C: Various modes of operation, SFR related to timer operation.

07 Hrs

UNIT-4:

Serial Port programming in assembly and C: Basics of serial communication, 8051 connection to RS 232. Serial data transfer programs. 8051 interrupts, Interrupts programming in assembly and C, programming timer interrupt, external interrupt, serial interrupt.

08 Hrs

UNIT-5:

Interfacing and programming for LCD, Interfacing RTC, EEPROM using I2C Bus and programming.

08 Hrs

UNIT-6:

Interfacing of ADC, DAC, stepper motor, DC motor, Servo motor.

07 Hrs

Text books:

1	The 8051 Microcontroller and Embedded systems using assembly & C	2 nd edition	by Muhammad Ali Mazidi	Pearson Education Asia LPE
2	8051 Microcontrollers programming and practice		By Mike Predcko	S.Chand
3	The 8051 Microcontroller Architecture, programming and Applications		By Kenneth Ayala	Cengage Learning
	Microprocessor & Interfacing:		: A. K. Ray, K. M. Bhurchandi.	TMH pub

Reference books:

1	Intel or Atmel MCS 51 Family Microcontrollers Data Sheets		Douglas V Hall	Tata Mc Graw Hill
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YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ET332	Microcontroller & Embedded Systems Lab	L = 0	T = 0	P = 2	Credits= 1
Evaluation Scheme	Continuous Evaluation	ESE		Total	ESE Duration
	20	30		50	2 Hrs
OBJECTIVES:					
1.To cover assembly and Embedded C-language for programming microcontroller. 2.To develop different models using interface different Peripherals to the microcontroller					
Sr.No	Name of experiment				
1	To add two 8- bit number and store the result in internal RAM memory of 8051 microcontroller.				
2	To find largest no. from the block of data stored in a RAM.				
3	To transfer block of data stored in a ROM to the internal RAM.				
4	To count no. of even numbers present in a block of data stored in an internal RAM.				
5	To convert packed BCD no. to its equivalent Hexadecimal no.				
6	Interface LED to one of the pin of microcontroller 8051 and toggle LED.				
7	Interface seven segment LED display to microcontroller 8051 and display BCD no. on seven segment display.				
8	Interface LCD display to microcontroller 8051 and display the character string on LCD .				
9	Interface stepper motor to microcontroller 8051 and rotate stepper motor clockwise & anticlockwise.				
10	Interface DAC to microcontroller 8051 and generate saw-tooth wave.				

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ET333	PRINCIPLES OF COMMUNICATION ENGINEERING	L= 4	T = 0	P = 0	Credits = 4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objectives:

The students should understand the advantage and limitations of various analog and digital modulation systems on a comparative a scale and relate to them while studying practical communication systems

UNIT-1:

Frequency spectrum of EM waves, their properties ,wave propagation, Noise, Types of noise ,source, noise figure calculation **07 Hrs**

UNIT-2:

Need for modulation, Basic scheme of a modern communication system, Derivation of expression for an amplitude modulated wave. Carrier and side band components. Modulation index. Spectrum and BW of AM Wave. Relative power distribution in carrier and side bands. Working principles and typical application as Square Law Modulator, Ring Modulator. **07 Hrs**

UNIT-3:

Expression for frequency modulated wave and its frequency spectrum (without Proof and analysis of Bessel function) Modulation index, maximum frequency deviation and deviation ratio, BW of FM signals, Carson's rule. Need for pre-emphasis and de-emphasis, Comparison of FM and AM in communication systems, Varactor diode modulator, Derivation of expression for phase modulated wave, modulation index, comparison with frequency modulation. **07 Hrs**

UNIT-4:

Principles of demodulation of AM wave using diode detector circuit; Basic principles of FM detection using slope detector, Foster-Seeley discriminator, Ratio detector **08 Hrs**

UNIT-5:

Radio receivers: Basic functions of radio receiver, Characteristics of radio receiver, Block diagram of AM radio receiver and FM radio receiver. **08 Hrs**

UNIT-6:

Pulse Modulation: PAM,PWM,PPM (waveforms and applications),Comparison of PAM,PWM,PPM
Digital Modulation: Sampling theorem, PCM ,DM.ASK,FSK,PSK **07 Hrs**

Text books:

1	Electronics Communication		Kennedy	Tata McGraw Hill, New Delhi
2	Radio Engineering		GK Mittal	Khanna Publishers, New Delhi
3	Principles of Communication Engineering		Anokh Singh	S.Chand & Co., New Delh

Reference books:

1	Principles of Communication Engineering		Roody , Coolin	
2	Principles of Communication Engineering		Manoj Kumar	Satya Prakashan, New Delhi

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ET334	PRINCIPLES OF COMMUNICATION ENGINEERING Laboratory	L = 0	T = 0	P = 2	Credits= 1
Evaluation Scheme	Continuous Evaluation	ESE		Total	ESE Duration
	20	30	50	2 Hrs	
OBJECTIVES:					
1.To understand the concept of various Analog Modulation techniques. 2.To understand the concept of various Digital Modulation techniques.					

Expt. No.	Name of Experiment
1	To study the Generation of Amplitude Modulation using transistor. Calculate modulation index for different values of modulating amplitude.
2	To study the Generation of Amplitude Demodulation using Envelop Detector.
3	To study the Generation of Double sideband suppressed Carrier.
4	To study the Generation of Frequency modulation using IC 8038 function generator.
5	To perform Frequency Demodulation using IC 565 PLL .
6	To study the Generation of Phase modulation & Demodulation .
7	Generation of PWM signal using IC 555 and Pulse Width Demodulation.
8	Generation of PPM signal using and Pulse Position Demodulation IC 555
9	Generation of Pulse Amplitude Modulation using IC 555 & IC 4016.
10	To study the generation of Frequency shift keying (FSK).
11	To perform Time Division Multiplexing(TDM).

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ME315/ME716	Operations Research Techniques	L=3	T=1	P=0	Credits=4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

OBJECTIVES

To develop in the engineering students the ability to analyze any engineering problem in a simple and logical manner and to apply to its solution a few, well understood basic principles.[a,k,m]

Unit 1

[7 hrs]

Introduction to OR & Basic OR Models, Definition Characteristics and limitations of OR linear programming solutions of LPP by graphical methods and simplex method. Sensitivity analysis & formulation of Dual of LPP.[a,k,m]

Unit 2

[8 hrs]

Assignment Model, Travelling Salesman Problem by branch and bound method transshipment model, Transportation Model. [a,k,m]

Unit 3

[7 hrs]

Dynamic programming structure and characteristics of Dynamic programming application of Dynamic programming to resource allocation, Inventory control & linear programming. [a,k]

Unit 4

[8 hrs]

Project Management : Drawing of Network, CPM & PERT, probability of completion of project, cost analysis, Allocation and updating of Networks. [a,k]

Unit 5

[7 hrs]

Replacement Models : Concept of equivalence , Interest Rate, Present worth ,economic Evolutions of Alternatives, Group replacement models. Inventory control models, Analysis of single product deterministic models.[a,k]

Unit 6

[8 hrs]

Waiting line situations, Queuing Theory and models (No derivations expected simulations, concept and its applications in waiting line situations, inventory and networks.[a,k]

Reference books:

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|---|--------------------|----------------------|
| 1 | Operation Research | Heera & Gupta |
| 2 | Operation Research | JK Sharma |
| 3 | Operation Research | Askhedkar & Kulkarni |
| 4 | Operation Research | Vohra ND |
| 5 | Operation Research | Liberman |

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ME316/ME717	Operations Research Techniques Laboratory	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	0	0	40	60	100	

List of Practical:

1. Study of introduction to OR, Basic OR Models.[a]
2. Problem on assignment model and traveling salesmen.[a,m]
3. Problem on transportation model by VAM method.[a,m]
4. Problem on Dynamic Programming & Applications.[a,m]
5. Problem on Sequencing model or Scheduling model.[a,m]
6. Problem on PERT and CPM[a,k,m]
7. Problem on Replacement model.[a,m]
8. Problem on Queuing model. [a,m]
9. Problem on inventory model.[a,m]
10. Problem on Simulation Model. [a,m]

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ME317/ME718	AUTOMOBILE ENGINEERING	L=3	T=1	P=0	Credits=4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

OBJECTIVES

The main objective of the syllabus to understand basic knowledge about Automobile systems which are used in the regular vehicle. The modernization in automobile is also included to understand recent trend in the field.[a,c,d,e,k,l]

UNIT-1: [8 hrs]

- Introduction, Automobile history and development and classification. Vehicles layout.
- Engine construction and working of 2 stroke and 4-stroke cycle.
- Introduction to Fuel supply system : Carburettor and fuel injection.
- Engine cooling and lubrication systems., [c,h,l]

UNIT-2: [8 hrs]

Clutch – Necessity, requirements of a clutch system. Types of Clutches: Single & multi plate clutch, Diaphragm clutch and centrifugal clutch.

Gear box: Necessity of gear box , working principle, Classification :Sliding mesh, constant mesh, synchromesh, synchromesh and Transfer case gear box, Gear Selector mechanism, lubrication and control. Introduction to Automatic Transmission[c,k,l]

UNIT-3: [8 hrs]

- Transmission system: Propeller shaft, Universal joint, constant velocity joint, Hotchkiss drive, torque tube drive.
- Differential - Need and working. Differential lock.
- Rear Axles and Front Axles
- Wheel and Tyres : tyres specification, factors affecting tyre performance.[c,k,l]

UNIT-4: [8 hrs]

- Steering systems, principle of steering, Steering linkages, steering geometry and wheel alignment, steering gear box and its types, Drum and Disc brakes, Comparison.
- Brakes - Need, types : Mechanical, hydraulic (Master and wheel cylinder), Air brakes.
- Suspension systems – Function, conventional and Independent suspension System, Telescopic shock absorber.[c,k,l]

UNIT-5: [8 hrs]

Electrical systems: Battery construction. Specification. Operation and maintenance of Batteries.

Alternator, starter motor, Battery Ignition and magneto ignition systems,Lighting, Horn, Side indicator , wiper.

Automobile air-conditioning,

Panel board instruments.

Overhauling, Engine tune up[c,d,l]

UNIT-6: [8 hrs]

- Resistance to vehicle motion: Air, Road and gradient resistance and power calculation.
- Recent Advances in automobiles such as ABS, Power Steering, Collision avoidance, Navigational aids and Intelligent vehicle highway system.[a,c,e,l]

Reference books:

S.N.	Title of Book	Edition	Authors	Publication
1	Automotive Technology		H.m.Sethi	Tata Mcgrahill
2	Automobile Engineering-I & II	First Edition - 2010	P.S.Gill	S.K.Kataria & sons
3	Automotive Machanics		Joseph Heitner	
4	Motor Vehicle Technology		J.A. Dolan	
5	Automotive Engines		W.H. Crouse K.Newton and	
6	Motor Vehicle		W.Seeds, T.K.Gawet	

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ME318/ME719	Automobile Engineering Laboratory	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	0	0	40	60	100	

List of Practical :Minimum eight practical to be conducted

1. Study and demonstration of four wheeler chassis layout. Two-wheel & four-wheel drive layouts.[c,l]
2. Study and demonstration of 2S & 4S Engine Working[c,l]
3. Study and Demonstration of working of single plate/Multiplate/Diaphragm automobile clutch.[k,m]
4. Study and demonstration of synchromesh gearbox.[k,m]
5. Study and demonstration of final drive and differential.[d,m]
6. Study and demonstration of working Hydraulic braking system.[c,l]
7. Study and demonstration of front wheel steering geometry and steering mechanism.[a,l]
8. Study and demonstration of suspension system of a four-wheeler.[c,l]
9. Study and demonstration of battery, electrical charging system.[d,l]
10. Study and demonstration of electrical starting system. [d,l]
11. Study and demonstration of Electric horn, Brake light and side indicator [d,l]
12. Visit to workshop to study and demonstration of wheel balancing.[c,g,l]
13. Visit to servicing station for study of vehicle maintenance, repairs and report[c,g,l]

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

ME321	Plastic Engineering	L=4	T=0	P=0	Credits=4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Course Objectives	Course Outcome
To familiarize students with : 1. Various Plastic materials, Their properties and applications 2. Different plastic processing techniques	Students will be able to : 1. Select the suitable plastic material for given application 2. Select suitable plastic processing technique

Unit 1 **[7 Hrs]**
 Chemistry and Classification of Polymers - Properties of Thermo Plastics - Properties of Thermosetting Plastics - Applications - Merits and Disadvantages. [c]

Unit 2 **[8 Hrs]**
 Extrusion - Blow Molding – Thermo Forming – Rotomolding [c]

Unit 3 **[7 Hrs]**
 Compression and Transfer Molding - study of compression molds [c]

Unit 4 **[7 Hrs]**
 Injection Molding- study of injection molding machines and molds. [c]

Unit 5 **[8 Hrs]**
 General Machining properties of Plastics - Machining Parameters and Their effect - Joining of Plastics - Mechanical Fasteners - Thermal bonding - Press Fitting. Testing of plastic [c]

Unit 6 **[8 Hrs]**
 Fibers - Glass, Boron, Carbon, Organic, Ceramic and Metallic Fibers - Matrix Materials - Polymers, Metals and Ceramics. Open Mould Processes, Bag Molding, Compression Molding with BMC and SMC - Filament winding - Pultrusion - Centrifugal Casting - Injection Molding - Application of PMC's. [c]

.Reference books:				
S.N.	Title of the book	Edition (Year of publication)	Author(s)	Publisher
1	Plastic Engineering		Patten	
2	Plastic Processing		R. J. Crawford	
3	Plastics Extrusion technology	1988	F.Hensen,	
4	Injection Moulding Machines	1983	F.ohannaber	Hanser Publishers,
5	Polymer extrusion	1990	C.Rauwendaal,	Hanser Publishers,
6	Blow Moulding Handbook	1989	D.V.Rosatao,	Hanser Publishers,
7	Modern Plastics Moulding		E.B Seamour,	John Wiley.
8	Manufacturing Engineering & Technology	6st Edition (2013)	S Kalpakjian & SR Schmid	Pearson Education Canada
9	Machining of Plastics	1981	Akira Kobayashi,	Mc-Graw Hill.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

Regular: - 6th Semester Free Elective - I Practical

ME322	Plastic Engineering	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	0	0	40	60	100	

Course Objectives	Course Outcome
To familiarize students with : 1. Various Plastic materials, Their properties and applications 2. Different plastic processing techniques	Students will be able to : 1. Select the suitable plastic material for given application 2. Select suitable plastic processing technique

List of Practical

1. Study of Plastic materials [c]
2. Study of Extrusion process and Blow molding process. [c]
3. Study of Thermoforming process and Rotomolding process. [c]
4. Study of Compression and Transfer molding processes. [ac]
5. Study of Compression molds. [c]
6. Study of Injection molding process. [c]
7. Study of Injection molds. [c]
8. Study of Joining and Machining of Plastics. [c]
9. Study of FRP processes. [c]
10. Visit to Plastic processing units. [c]

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

EE320 / EE709	Data Acquisition & Signal Conditioning	L= 4	T = 0	P = 0	Credits = 4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objective	Outcome
The course gives an overview about the data acquisition methods, to acquaint students with ADCs and DACs and various data acquisition techniques.	<ul style="list-style-type: none">➤ Graduates will be able to identify the hardware components of data acquisition system.➤ Will understand the various methods of signal conditioning.➤ Will able to understand the basics of peripheral interfaces wrt communication links.
Mapped Program Outcomes: : b,c,d,k	

UNIT-1:

Definition of data acquisition and control, Fundamentals of data acquisition, Signal conditioning, Data acquisition and control system configuration, Computer plug-in I/O, Distributed I/O, Stand-alone or distributed loggers/controllers, Analog and digital signals: Classification of signals, Sensors and transducers, Transducer characteristics, Resistance temperature detectors (RTDs), Thermistors, Thermocouples, Strain gauges, Wheatstone bridges.

UNIT-2:

Signal conditioning: Types and classes, Field wiring and signal measurement, Noise and interference, Minimizing noise, Shielded and twisted-pair cable.

UNIT-3

Plug-in data acquisition boards, A/D Boards, Single ended vs differential signals, Resolution, dynamic range and accuracy of A/D boards, Sampling rate and the Nyquist theorem, Sampling techniques, D/A boards, Digital I/O boards

UNIT-4:

Serial data communications, Transmission modes – simplex and duplex, RS-232-C interface standard, RS-485 interface standard, Comparison of the RS-232 and RS-485 standards, Serial interface converters, Protocols, Error detection

UNIT-5

IEEE 488 Standard, Introduction, Electrical and mechanical characteristics, Physical connection configurations, Device types, Bus structure, GPIB handshaking, Device communication, Requirements of IEEE 488.2 controllers, Standard commands for programmable instruments (SCPI)

UNIT-6:

Ethernet and field buses for data acquisition, Physical layer, Medium access control, Difference between 802.3 and Ethernet, The universal serial bus (USB), USB overall structure, Topology.

Text books:

- 1 Data Acquisition for Instrumentation and Control Systems John Park and Steve Mackay

Reference books:

- 1 Electronic Analog Digital Conversion 1st Edition H. Schmid Tata McGraw Hill
- 2 Data Converters 1st Edition , 1993 B. S. Sonde Tata McGraw Hill

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

EE321 / EE710	Data Acquisition & Signal Conditioning Laboratory	L = 0	T = 0	P = 2	Credits = 1
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Evaluation Scheme	Continuous Evaluation	ESE	Total	ESE Duration
	40	60	100	

Objective	Outcome
The course gives an overview about the data acquisition methods, to acquaint students with ADCs and DACs and various data acquisition techniques.	<ul style="list-style-type: none">➤ Graduates will be able to identify the hardware components of data acquisition system.➤ Will understand the various methods of signal conditioning.➤ Will able to understand the use of ADC and DAC in DAQ system.
Mapped Program Outcomes: : b,c,d,k	

**Expt.
No.**

Name of Experiment

- 1 Study of Sampling Theorem
- 2 Interfacing D/A Converter to microprocessor
- 3 Interfacing A/D Converter to microprocessor
- 4 To verify multiplexed channel operation
- 5 To verify microprocessor based data acquisition system
- 6 Implementation of Digital data Acquisition system using Virtual Instrumentation Software
- 7 Implementation of signal conditioning using Virtual Instrumentation Software

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

EE322 / EE720	Microprocessor & Microcontroller	L= 4	T = 0	P = 0	Credits = 4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objective	Outcome
To understand the architecture, programming and addressing modes of Intel 8085 and 8051	<ul style="list-style-type: none">➤ Students will be able to understand the concept of processor, architecture of 8085 and 8051.➤ Students will demonstrate the ability to identify, formulate and design program for an assigned task.➤ Students will be able to interface & program peripheral devices.
To study the instruction set and programming of 8085 and 8051	
To understand various interfacing of devices for various applications.	
Mapped Program Outcomes: a,b,c,d,e	

UNIT-1:

Concept of bit, byte & word, Micro Computer organization with I/O devices and memory. Microprocessor, address, data & control bus, RAM / ROM memory.

UNIT-2:

Architecture of 8085 Intel microprocessor, pins diagram of 8085, Demultiplexing of Address & Data Bus, Generation of various control signals for I/O & Memory Organisation.

UNIT-3

Addressing mode, Basic Instruction set, Subroutine instructions like CALL, PUSH, POP, XTHL instructions and their uses. Interrupts-Interrupt structure of 8085, Programs based on instructions.

UNIT-4:

Salient features of microcontroller 8051, Architecture of 8051, Pins diagram of 8051, SFRs of 8051, Addressing modes, Instruction set, Simple programmes based on arithmetic, logical operations, BCD arithmetic, bit manipulations. Reset Circuit of 8051.

UNIT-5

Advanced instructions, delay programmes. Interfacing of LED, 7 segment display, switches, LCD display interface & programming, Matrix Keyboard interfacing

UNIT-6:

Different modes of timer/Counters, applications of timer, Inter facing of ADC & DAC. Serial Communication. Minimum 8051 system design.

Text books:

1	Programming & Interfacing 8085	Ramesh Gaonkar	Penram Publication
2	8051 Microcontroller	Kenneth Ayala	Penram Publication

Reference books:

1	8085 Microprocessor	Ajit Pal	Tata Mc-Graw Hill
2	0000 to 8085	Shridhar Ghosh	PHI
3	The 8051 Microcontroller & Embedded System	M. A. Mazidi, J. G. Mazidi	Pearson

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

EE323 / EE721	Microprocessor & Microcontroller Laboratory	L = 0	T = 0	P = 2	Credits = 1
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Evaluation Scheme	Continuous Evaluation	ESE	Total	ESE Duration
	40	60	100	

Objective	Outcome
To familiar with microprocessor kit & command used on it. To enhance the ability of logical thinking so that student will be able to design an algorithm and program on 8085 and 8051 for a specific task.	<ul style="list-style-type: none">➤ Student will be able to understand different instruction used in 8085 and 8051 for programming.➤ Effective algorithm designing for a specific experiment.➤ Students will demonstrate the ability to design and conduct experiments, analyze and interpret data.
Mapped Program Outcomes: a,b,c,d,e	

**Expt.
No.**

Name of Experiment

- 1 To Add, Subtract, AND, OR, XOR to 01H to FFH using 8085
- 2 Add data bytes in a block using 8085
- 3 Find number of negative data bytes in a block using 8085
- 4 Replace leading Zeros with a blank using 8085
- 5 Data block Transfer from 40H to 30H using 8051
- 6 To find Maximum Data byte in a block using 8051
- 7 To glow LED with delay of 1 Second using 8051
- 8 To display 0 to 9 on seven segment display using 8051
- 9 To generate Square wave on p1.0 using 8051
- 10 To read data from channel 0 of ADC
- 11 To generate Saw tooth wave using DAC
- 12 To interface Stepper motor using 8051

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CT326/CT711	SQL / PLSQL	L=4	T=0	P=0	Credits=3
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objectives	Outcomes
To understand and execute different SQL queries and PL / SQL programs, to make use of procedural language constructs of PL/SQL, write better performance queries and implement error handling.	Students should be able to execute PL/SQL programs and implement error handling.
Mapped Program Outcomes: b,c,d,e,,i,k,	

UNIT I: Working with Data Model

Database Design
Database Models
The Entity Relationship Model
Entity Relationship Diagrams
The Sample Database
ER Diagram for Sample Database
Creating the Sample Data
Viewing Sample Data
Data Types of the Sample Data.
Introduction to The Object Navigator The Data Model.
The Layout Model. The Parameter Form Saving the report Execution & Runtime Output.
Defining the Data Model Queries Groups, Columns & Parameters
The Layout Model Default Layouts Tabular, Master/Detail, Form Letter, Form, Mailing Label
Layout Model Objects: Frames, Fields, Repeating Frames
Specifying a Runtime Parameter Form Formulas & Summaries Changing Fonts & Modifying Field Properties
Format Masks Fonts & Colours Changing Column Labels
Page Layout Adjusting Page size Page Headers & Footers. Adding Report Titles. Adding Report Dates & Page Numbering
Report Headers & Footers

UNIT II: Oracle9i SQL: SQL*Plus Basics Simple Queries Sub queries and Groups.

Data Definition Language
Categories of SQL Statements
Oracle Data types
The CREATE Statement
The DROP Command
The ALTER Command
Integrity Constraints

UNIT III:

Data Manipulation Language
DML Statements
The SELECT Statement
The INSERT Statement
The DELETE Statement
The UPDATE Statement
More SQL*Plus Commands

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CT326/CT711	SQL / PLSQL				L=4	T=0	P=0	Credits=3
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration		
	15	15	10	60	100	3 Hrs		

Unit IV

SQL vs. PL/SQL
A Few Simple Examples
Saving Procedures
A More Complete Picture
Comments
Variable Substitution
Simple Exception Handling
Advantages of PL/SQL
Assignments
Declarations and Data Types
Declarations
Standard Data Types
Initialization
Variable Names
Specialized Data Types - %TYPE
Specialized Data Types - %ROWTYPE
Building Your Own Data Types - Records

Unit V

A Quick look at Loops
Language Components
Introduction
Assignments
Decision Making Statements
Simple Loops
Loops - for
Loops - indefinite
Loops - while
Simple Loops
Nested Loops
Boolean Variables
PL/SQL Relational Operators
PL/SQL Logical Operators
The CASE Construct
ORACLE Forms: Introduction to Forms
What is Report and what is it used for? Invoking the Forms Designer. Creating a basic form.
The Object Navigator Creating a Base Table Block. Adding a Detail Block. Saving and Generating the Form
The Runtime Interface Querying the Database Normal & Enter Query Mode Manipulating the Database
Inserting, Updating, Deleting. Transaction Control

Unit VI

Cursors
Introduction
Cursor Manipulation
Using the Cursor
For Loops Cursors
Cursor Attributes
Cursor Parameters
Nested Cursors
Cursor Exceptions
ORACLE Reports: Introduction to Reports
What is Reports and what is it used for? Invoking the Reports Designer.
Overview of the Designer interface. Using the Report Design Wizards Creating a Basic Report.

Text Books:

Oracle 10g By P.S. Deshpande

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CT327/CT712	SQL/PLSQL Laboratory	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	Continuous Evaluation	ESE	Total	ESE Duration
	40	60	100	

Objectives	Outcomes
To understand and execute different SQL queries and PL / SQL programs, to make use of procedural language constructs of PL/SQL, write better performance queries and implement error handling.	Students should be able to execute PL/SQL programs and implement error handling.
Mapped Program Outcomes: b,c,d,e,,i,k,	

COURSE OBJECTIVES

1. The students will be able to understand and execute different SQL queries and PL / SQL programs.
2. This would enable them to make use of procedural language constructs of PL/SQL, write better performance queries and implement error handling.

LIST OF PRACTICAL

1. Design conceptual model of the database
2. Design physical model of database
3. Extracting data from the database
4. Perform complex queries on the database using Joins
5. Introduction to the PL / SQL programming.
6. Write a program to implement control structures.
7. Write a program to implement loop structures.
8. Write a program to interact with the database using 'Select – Into' clause
9. Write a program to interact with the database using Cursors.
10. Write a program to implement cursor attributes.
11. Write a program to implement cursors variables.

Beyond Syllabus

1. Write a stored procedure.
2. Write a program to implement Varray and nested table structure

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CT350/CT725	LINUX OPERATING SYSTEM	L=3	T=1	P=0	Credits=4
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs

Objectives	Outcomes
To understand the concepts of Linux and its potential. The students will also get hand on experience of Linux after undergoing this course.	Students should be able to use LINUX environment to implement some concepts.
Mapped Program Outcomes: b,c,e,,k,	

UNIT I:

Introduction: History of Linux and Unix, Linux Overview, Linux releases, open linux

UNIT II:

Linux Commands and Filters : Mkdir, CD, rmdir, pwd, ls, who, whoami, cat, more, fail, head, concept of, mv, chmod, grep, wc, comm., split, sort, diff, kill, write, wall, merge, mail, news

UNIT III:

Shell: The command line special characters and file arguments, standard input/output and redirection, pipes, redirecting and piping with standard errors, shell scripts, jobs.

UNIT IV:

Linux file Structure: Linux files, file structure, listing displaying and printing files, managing directories, file and directory operations.

UNIT V:

Vi Editor: Vi editing commands advanced Vi editing commands, line editing commands, options in Vi.

UNIT VI:

System Administration: System management, managing users, installing and managing devices, floppy disk management, file system administration, backups.

Text Books

1. Linux – The Complete Reference by Richard Peterson, Tata McGraw Hill, New Delhi
2. Linux – Install and Configuration Black Book by Die Annleblanc and Issac Yates, IDG Books India Private Ltd., Delhi
3. Unleashed Linux by Tech Media Publishers.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

CT351/CT726	LINUX OPERATING SYSTEM Laboratory	L=0	T=0	P=2	Credits=1
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Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
			40	60	100	

COURSE OBJECTIVE

Objectives	Outcomes
To get hand on experience of Linux.	Students should be able to use LINUX environment to implement some concepts.

Mapped Program Outcomes: b,c,e,k.

YESHWANTRAO CHAVAN COLLEGE OF ENGINEERING

FREE ELECTIVE –I

IT322	Web Technology		L=4	T=0	P=0	Credits=4
Evaluation Scheme	MSE-I	MSE-II	TA	ESE	Total	ESE Duration
	15	15	10	60	100	3 Hrs.

OBJECTIVES: -

1. To learn how to design web pages.
2. To understand basic internet concepts.
3. To learn scripting languages.

UNIT I

[10 Hrs.]

History of the internet, internet address and domains, Basic tools of internet access, email, ftp, TELNET(Remote Login),news, Introduction to World Wide Web(WWW):The basics of www and browsing working of web browser and web server, Web browser Architecture, Web server and its deployment

UNIT II

[08 Hrs.]

Web Page Designing: Standard use for www documents on internet, HTTP, MIME, SGML, DTD, MTNL, URL, Static and Dynamic Web sites, Creation of web pages: HTML tags, special characters, images, tables, forms, the hyperlinks, Frames

UNIT III

[09 Hrs.]

Dynamic HTML(DHTML):

Introduction, Cascading Style Sheets(CSS),DHTML Document Object Model and Collections

UNIT IV

[08 Hrs.]

Scripting:- Java Script objects and forms

UNIT V

[08 Hrs.]

XML:XML basics, understanding markup languages, structures and syntax, valid Vs. Well formed XML, DTD (document type Definitions) classes, Element Type Declaration, Attribute Declarations, Limitations of DTDs, XML processor, Introduction to Schema, Complex Types, Extensible Style sheet Language Transformations(XSLT),Basics of Parsing

UNIT VI

[07 Hrs.]

ASP.NET-An Overview: Introduction, Popular Web Technologies, What is ASP. NET, An overview of the .NET Framework,ASP.NET Details, Server Controls and Web Controls, Validation Controls, Database Processing, ActiveX Controls

COURSE OUTCOMES:

After Completion of this course students will be able to:

1. Student can specify how the tags are interpreted through DTD and how they are displayed on web with XSL documents.
2. To develop database-driven web sites.
3. Use Markup Languages.
4. Maintain a Website.

Mapping of CO's with PO &PSO: b, f, g,i

Text books:

- | | | | | | |
|---|--|-------------|----------------|-----------------------------------|----------------------|
| 1 | Web Technologies Architecture, and Programming | TCP/IP Java | Second Edition | Achyut S. Godbole and Atul Kahate | Tata McGraw Hill Pub |
| 2 | The Complete Reference HTML and XHTML | | Fourth Edition | Thomas A.Powell | Tata McGraw Hill Pub |
| 3 | XML in action web technology | | 2001 | William J. Pardi | PHI Pub |
| 4 | Web Technology A Developer's Perspective | | Paperback | N.P.Gopalan and J.Akilandeswari | PHI Pub |

Reference books:

- | | | | | |
|---|---------------------------------|-------------------------|--------------------------------|------------------|
| 1 | Step by Step XML | 2 nd Edition | Michael J. Young | PHI |
| 2 | Designing Interactive Web sites | | James I. Mohler & John M. Duff | Thomson Learning |