Display of Cos in course delivery plans

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

DEPARTMENT OF CIVIL ENGINEERING	L : 4
PROGRAM(UG) :CIVIL Course Code :R2031013 Course Name :GEOTECHNICAL ENGINEERING - I	T : 0 P : 3 C : 3

Class	Course Coordinator	Section	Name of the Faculty
IIIYEAR- I SEM	Dr.N.R.M. .Reddy	A	Mr.A.JAGADESWARRAO

COURSENAME (C1026)	COURSEOUTCOME	Evaluate	
PC503.1	The student must know the definition of the various quantities related to soil mechanics and establish their inter-relationships.	Understanding	K5
PC503.2	The student should be able to know the methods of determination of the various index properties of the soils and classify the soils.	Analysing	L3
PC503.3	The student should be able to know the importance of the different engineering properties of the soil	Good	L5
PC503.4	The student should be able to apply the above concepts in day-to-day civil engineering practice.	Good	L6

S.No	Course Objective
1	To enable the student to determine the index properties of the soil and classify it
2	To impart the concept of seepage of water through soils and determine the discharge of water through soils
3	To impart the principles of compaction and consolidation of soils and determine the magnitude and the rate of consolidation settlement
4	To enable the student to understand the concept of shear strength of soils, determine the shear parameters of sands and clays and the areas of their application.

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

UNIT-I

Introduction: Soil formation – soil structure and clay mineralogy – Adsorbed water – Mass-volume relationship –Relative density Index Properties of Soils: Grain size analysis – Sieve and Hydrometer methods – consistency limits and indices – Various Types of soil Classifications – Unified soil classification and I.S. Soil classification.

S.NO	Topic	Page No's	Teaching Aid
1	Introduction: Soil formation – soil structure and clay mineralogy	3-5	
2	Adsorbed water	6-6	BLACK BOARD/CHALK
3	Mass- volume	6-6	BLACK BOARD /CHALK
4	relationship –Relative density Index Properties	7-8	BLACK BOARD/CHALK
5	Grain size analysis – Sieve and Hydrometer	12-14	PPT
6	methods – consistency limits and indices	14-15	BLACK BOARD/ CHALK
7	Various Types of soil Classifications	15-15	BLACK BOARD / CHALK
8	Unified soil classification and I.S. Soil	16-17	BLACK BOARD/ CHALK
Total		13	

UNIT-II

Permeability: Soil water – capillary rise – One dimensioned flow of water through soils – Darcy's law- permeability – Factors affecting –laboratory determination of coefficient of permeability – Permeability of layered systems. Geostatic Stresses: Total, neutral and effective stresses –quick sand condition Seepage: 2-D flow and Laplace's equation-Seepage through soils–Flow nets: Characteristics and Uses.

S.NO	Topic	Page No's	Teaching Aid
1	Permeability: Soil water	13-14	BLACK BOARD/ CHALK
2	capillary rise – One dimensioned flow of	134-135	PPT
3	Darcy's law- permeability – Factors affecting	138-139	BLACK BOARD/ CHALK
4	laboratory determination of coefficient of	139-140	BLACK BOARD/
5	–laboratory determination of coefficient of permeability	140-141	BLACK BOARD/ CHALK
6	Permeability of layered systems	140-141	PPT
7	Geostatic Stresses: Total, neutral and effective stresses	218-219	BLACK BOARD/ CHALK
8	-Seepage through soils–Flow nets: Characteristics and Uses.	219-220	BLACK BOARD/ CHALK
Total		12	

Principal
A.M.REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Md),Guntur Dt

A.M.REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Md),Guntur Dt

UNIT – III

Stress Distribution In Soils: Stresses induced by applied loads - Boussinesq's and Westergaard's theories for point loads and areas of different shapes– Newmark's influence chart – 2:1 stress distribution method.

Sno	Topic	Page No's	Teaching Aid
1	Stress Distribution In Soils	255-255	BLACK BOARD/ CHALK
2	Stresses induced by applied loads	218-219	BLACK BOARD/ CHALK
3	Boussinesq's	218-220	BLACK BOARD/ CHALK
4	Westergaard's theories for point loads	220-224	BLACK BOARD/ CHALK
5	areas of different shapes	223-224	BLACK BOARD/ CHALK
6	Newmark's	225-228	PPT
7	influence chart	229-230	BLACK BOARD/ CHALK
8	:1 stress distribution method	255-255	BLACK BOARD/ CHALK
Total		10	

UNIT – IV

Compaction: Mechanism of compaction – factors affecting – effects of compaction on soil properties - compaction control. Consolidation: Compressibility of soils –e-p and e-log p curves – Stress history – Concept of consolidation - Spring Analogy - Terzaghi's theory of one-dimensional Consolidation – Time rate of consolidation and degree of consolidation – Determination of coefficient of consolidation (cv) - Over consolidated and normally consolidated clays

S.NO	Topic	Page No's	Teaching Aid
1	Compaction: Mechanism of compaction	357-357	BLACK BOARD/ CHALK
2	factors affecting – effects of compaction on soil	357-359	VIDEOS
3	compaction control. Consolidation	360-361	BLACK BOARD/
4	Compressibility of soils –e-p and e-log p curves	362-363	BLACK BOARD/
5	Stress history	364-366	VIDEOS
6	Concept of consolidation - Spring Analogy -	366-367	VIDEOS
7	Time rate of consolidation and degree of consolidation	369-370	PPT
8	Determination of coefficient of consolidation (cv) - Over consolidated and normally consolidated clays	370-375	BLACK BOARD/ CHALK
Total		11	

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl), Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl), Guntur Dt.

UNIT – V

Shear Strength of Soils: Basic mechanism of shear strength -Mohr – Coulomb Failure theories – Stress-Strain behavior of Sands - Critical Void Ratio – Stress-Strain behavior of clays – Shear Strength determination- various drainage conditions.

Sno	Topic	Page No's	Teaching Aid
1	Shear Strength of Soils:	306-306	BLACK BOARD/ CHALK
2	Basic mechanism of shear strength	314-315	PPT
3	Coulomb Failure	315-316	BLACK BOARD/ CHALK
4	theories – Stress-Strain behavior of Sands	317-320	PPT
5	Critical Void Ratio	320-321	BLACK BOARD/ CHALK
6	Stress-Strain	323-224	PPT
7	behavior of clays	330-331	BLACK BOARD/ CHALK
8	Shear Strength determination- various drainage conditions	348-349	BLACK BOARD/ CHALK
Total		14	

TEXTBOOKS: SOIL MECHANICS AND FOUNDATION ENGINEERING

PREPAREDBY	SIGNATURE	APROVED	SIGNATURES
Mr.A.JAGADESWARRAO		CE-HOD	
		PRINCIPAL	

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

DEPARTMENT OF ELECTRICAL AND ELECTRONICSENGINEERING	L : 4
PROGRAM(UG) :EEE Course Code :R204102B Course Name :FLEXIBLE ALTERNATINTG CURRENT TRANMISSION SYSTEMS Regulation : R20	T : 0 P : 3 C : 3

Class	Course Coordinator	Section	Name of the Faculty	G. Mastan Reddy
IV YEAR- I SEM	MR. G MASTAN REDDY	A		

COURSE NAME (C1026)	COURSEOUTCOME		
C411.1	Determine power flow control in transmission lines by using FACTS controllers	EVALUATE	L1
C411.2	Demonstrate operation and control of voltage source converter and know the concepts current source converter.	ANALYSIS	L2
C411.3	Analyse compensation by using different compensators to improve stability and reduce power oscillations in the transmission lines	ANALYSIS	L3
C411.4	Know the concepts methods of compensations using series compensators.	ANALYSIS	L4
C411.5	Analyse operation of Unified Power Flow Controller (UPFC) and Interline power flow controller (IPFC).	ANALYSIS	L5
C411.6	Determine power flow control in transmission lines by using FACTS	ANALYSIS	L6

Principal
A.M.REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt

Principal
A.M.REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt

S.No	Course Objective
1	To learn the basics ofpowerflowcontrol in transmissin lines byusing FACTScontrollers
2	To learn the basics of power flow control in transmission lines using FACTS controllers
3	To explain operation and control of voltage source converter
4	To learn the method of shunt compensation using static VAR compensators.
5	To learn the methods of compensation using series compensators
6	learn the method of shunt compensation using static VAR compensators

UNIT-I

Power flow in an AC System – Loading capability limits – Dynamic stability considerations – Importance of controllable parameters – Basic types of FACTS controllers – Benefits from FACTS controllers – Requirements and characteristics of high power devices – Voltage and current rating – Losses and speed of switching – Parameter trade–off devices.

S.NO	Topic	Page No's	Teaching Aid
1	Power flow in an AC System	1-5	Board&chalk
2	Loading capability limits	5-10	ppt
3	Dynamic stability	5-12	Board&chalk
4	Importance of controllable	12-15	ppt
5	Basic types of FACTS	22--25	Board&chalk
6	Voltage and current rating	33-36	ppt
7	– Losses and speed of switching	37-39	Board&chalk
8	Benefits from FACTS	39-42	ppt
9	Requirements and	42-45	Board&chalk
10	Voltage and current rating	11-113	ppt
Total		14	

UNIT-II

Voltage source converter (VSC) – Single phase full-wave bridge converter – Square wave voltage harmonics for a single–phase bridge converter – Three–phase full-wave bridge converter - Transformer connections for 12 pulse operation.

Current Source Converter (CSC)-Three–phase current source converter – Comparison of current source converter with voltage source converter.

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl), Guntur(Dt.)

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl), Guntur(Dt.)

Sno	Topic	Page No's	Teaching Aid
1	Voltage source converter (VSC)	222	Board&chalk
2	Single phase full-wave bridge converter	252	ppt
3	Square wave voltage	212	Board&chalk
4	harmonics for a single–phase bridge converter	352	ppt
5	phase bridge converter	262	Board&chalk
6	Three–phase full-wave bridge converter	152	ppt
7	Transformer connections for 12 pulse operation	135	Board&chalk
8	Current Source Converter (CSC	265	ppt
9	Three–phase current source converter	225	Board&chalk
10	Comparison of current source converter with voltage source converter.	235	ppt
Total		13	

UNIT-III

Shunt Compensators

Objectives – Mid–point voltage regulation for line segmentation – End of line voltage support to prevent voltage instability – Improvement of transient stability – Power oscillation damping.

Variable Impedance Type VAR Generator: Thyristor Switched/Controlled Reactor (TSR/TCR) – Thyristor Switched Capacitor (TSC) – Fixed Capacitor–Thyristor Controlled Reactor (FC-TCR) - Thyristor Switched Capacitor and Thyristor Controlled Reactor (TSC–TCR) - Switching Converter type VAR generator.

Principle of operation and comparison of SVC and STATCOM..

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Midl),Guntur(Dt

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Midl),Guntur(Dt

Sno	Topic	Page No's	Teaching Aid
1	bjectives – Mid–point voltage regulation for line	102	Board&chalk
2	End of line voltage support to prevent wave bridge converter	103	ppt
3	voltage instability	115	Board&chalk
4	Improvement of transient stability single–phase bridge converter	117	ppt
5	Power oscillation damping converter	125	Board&chalk
6	Thyristor Switched/Controlled Reactor (TSR/TCR wave bridge converter	135	ppt
7	Thyristor Switched Capacitor (TSC connections for 12 pulse operation	125	Board&chalk
8	Thyristor Controlled Reactor (TSC–TCR) - Switching Converter type VAR generator. Converter (CSC	125	ppt
9	Principle of operation and comparison of SVC and STATCOM source converter	136	Board&chalk
10	Fixed Capacitor current source converter with voltage source converter.	112	ppt
Total		15	

UNIT-IV

Concept of series capacitive compensation – Improvement of transient stability – Power oscillation damping – Functional requirements. Variable Impedance type series compensators – GTO Thyristor controlled Series Capacitor (GSC) – Thyristor Switched Series Capacitor (TSSC) and Thyristor Controlled Series Capacitor (TCSC) - Switching Converter type Series Compensation – Static Synchronous Series Compensator

Sno	Topic	Page No's	Teaching Aid
1	Concept of series capacitive compensation point voltage regulation for line segmentationconverter (VSC)	55	Board&chalk
2	capacitive compensation support to prevent wave bridge converter	57	ppt
3	Improvement of transient stability	58	Board&chalk
4	Power oscillation damping transient stability single–phase bridge converter	59	ppt
5	Functional requirements damping converter	61	Board&chalk
6	Variable Impedance type series Switched/Controlled Reactor (TSR/TCR wave bridge converter	63	ppt
7	Thyristor Switched Series Capacitor (TSSC)Capacitor (TSC connections for 12 pulse operation	64	Board&chalk
8	a Controlled Series Capacitor (TCSC Controlled Reactor (TSC–TCR) - Switching Converter type VAR generator. Converter (CSC	66	ppt
9	Principle of operation and comparison of SVC and STATCOM source converter	54	Board&chalk
10	Switching Converter type Series Compensation current source converter with voltage source converter.	68	ppt
Total		12	

UNIT-IV

Schematic and basic operating principles of unified power flow controller (UPFC) and Interline power flow controller (IPFC) – Controller applications of transmission

Sno	Topic	Page No's	Teaching Aid
1	Schematic and basic operating principles of unified power flow controller (UPFC)	72	Board&chalk
2	Schematic and basic operating principles of unified power flow controller (UPFC)	73	ppt
3	Schematic and basic operating principles of unified power flow controller (UPFC)	74	Board&chalk
4	Schematic and basic operating principles of unified power flow controller (UPFC)	735	ppt
5	Interline power flow controller (IPFC	76	Board&chalk
6	Interline power flow controller (IPFC	77	ppt
7	Interline power flow controller (IPFC	78	Board&chalk
8	Controller applications of transmission lines	80	ppt
9	Controller applications of transmission lines	82	Board&chalk
10	Controller applications of transmission lines	83	ppt
Total		16	

TEXTBOOKS :

1. "Understanding FACTS" N.G.Hingorani and L.Guygi, IEEE Press.Indian Edition is available:— Standard Publications, 2001.

PREPARED BY	SIGNATURE	APPROVED	SINATURES
MR. G MASTAN REDDY		EEE-HOD	
		PRINCIPAL	

Principal
A.M.REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

Principal
A.M.REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

DEPARTMENT OF MECHANICAL ENGINEERING	L : 4
PROGRAM(UG) :ME Course Code :R2021031 Course Name : KINEMATICS OF MACHINERY	T : 0 P : 3 C : 3

Class	Course Coordinator	Sectio	Name of the Faculty	CH.MALLIKARJUNA
II Year - I Semester	CH.MALLIKARJUNA	A		
		B		

COURSE NAME (C1026)	COURSE OUTCOME		
C211.1	Contrive a mechanism for a given plane motion with single degree of freedom.	Evaluate	
C211.2	Suggest and analyze a mechanism for a given straight line motion and automobile steering motion.	ANALAYSIS	
C211.3	Analyze the motion (velocity and acceleration) of a plane mechanism.	UNDERSTAND	
C211.4	Suggest and analyze mechanisms for a prescribed intermittent motion like opening and closing of IC engine valves etc.	EVALUATE	
C211.5	Select a power transmission system for a given application and analyze motion of different transmission systems	UNDERSTAND	

S.No	Course Objective
1	The students completing this course are expected to understand the nature and role of the kinematics of machinery, mechanisms and machines
2	The course includes velocity and acceleration diagrams, analysis of mechanisms joints, Cams and their applications.
3	It exposes the students to various kinds of power transmission devices like belt, rope, chain and gear drives and their working principles and their merits and demerits. demerits. demerits. demerits.

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(Dt)

UNIT-I:

MECHANISMS : Elements or Links – Classification – Rigid Link, flexible and fluid link – Types of kinematic pairs – sliding, turning, rolling, screw and spherical pairs – lower and higher pairs – closed and open pairs – constrained motion – completely, partially or successfully constrained and incompletely constrained.

Grashoff'slaw , Degrees of freedom ,Kutzbachcriterian for planar mechanisms, Mechanism and machines – classification of machines – kinematic chain – inversion of mechanism – inversions of quadric cycle chain – single and double slider crankchains.

SNO	Topic	Page No's	Teaching Aid
1	Elements or Links	7-9	CHALK
2	Classification – Rigid Link, flexible and fluid link	12-15	PPT
3	Types of kinematic pairs – sliding, turning, rolling	17-20	PROJECTOR
4	screw and spherical pairs	22-24	Board &Chalk
5	lower and higher pairs	25-28	Board &Chalk
6	closed and open pairs	30-32	PPT
7	constrained motion – completely	34-35	PROJECTOR
8	constrained motion – completely	36-38 15	Board &Chalk
9	incompletely constrained.	40-42	Board &Chalk
10	Grashoff'slaw , Degrees of freedom	44-47	PPT
11	Kutzbachcriterian for planar mechanisms	48-50	PROJECTOR
12	Mechanism and machines – classification of machines	52-55	Board &Chalk
13	kinematic chain – inversion of mechanism	58-61	Board &Chalk
14	inversions of quadric cycle chain	63-66	PPT
15	single and double slider crankchains	68-72	
	Total	15	

UNIT-II:

LOWER PAIR MECHANISM: Exact and approximate copiers and generated types – Peaucellier, Hart and Scott Russul – Grasshopper – Watt T. Chebicheff and Robert Mechanisms and straight line motion, Pantograph.

Conditions for correct steering – Davis Steering gear, Ackermans steering gear – velocity ratio; Hooke's Joint: Single and double – Universal coupling–application–problems.

S.NO	Topic	Page No's	Teaching Aid
1	Exact and approximate copiers and generated types.	74-78	Board &Chalk
2	Peaucellier, Hart and Scott Russul.	81-85	PPT
3	Grasshopper – Watt T.	87-92	PROJECTOR
4	Chebicheff and Robert Mechanisms and straight line motion, Pantograph.	94-97	Board &Chalk
5	Conditions for correct steering	100-104	Board &Chalk
6	Davis Steering gear	106-109	PPT
7	Ackermans steering gear	110-114	Board &Chalk
8	velocity ratio	116-119	Board &Chalk
9	Hooke's Joint: Single and double	122-126	Board &Chalk
10	Universal coupling–application–problems.	128-131	PROJECTOR
Total		10	

UNIT – III :

KINEMATICS: Velocity and acceleration – Motion of a link in machine – Determination of Velocity and acceleration diagrams – Graphical method – Application of relative velocity method four bar chain. Velocity and acceleration analysis of for a given mechanism, Klein's construction, determination of Coriolis component of acceleration.

PLANE MOTION OF BODY: Instantaneous center of rotation, centroids and axodes – relative motion between two bodies – Three centres in line theorem – Graphical determination of instantaneous centre, diagrams for simple mechanisms and determination of angular velocity of points and links.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(Dt)

Sno	Topic	Page No's	Teaching Aid
1	Velocity and acceleration.	133-136	Board &Chalk
2	Motion of a link in machine.	138-140	PPT
3	Determination of Velocity and acceleration diagrams.	142-146	PROJECTOR
4	Graphical method	148-152	Board &Chalk
5	Application of relative velocity method four bar chain.	154-157	Board &Chalk
6	Velocity and acceleration analysis of for a given mechanism.	159-162	PROJECTOR
7	Klein's construction, determination of Coriolis component of acceleration.	164-166	PPT
8	Instantaneous center of rotation	169-171	Board &Chalk
9	centroids and axodes – relative motion between two bodies	173-175	PROJECTOR
10	Three centres in line theorem	177-179	Board &Chalk
11	Graphical determination of instantaneous centre,	181-183	PPT
12	diagrams for simple mechanisms and determination of angular velocity of points and links.	185-187	Board &Chalk
Total		12	

UNIT – IV:

CAMS: Definitions of cam and followers – their uses – Types of followers and cams – Terminology – Types of follower motion: Uniform velocity, Simple harmonic motion and uniform acceleration and retardation. Maximum velocity and maximum acceleration during outward and return strokes in the above 3cases.

Analysis of motion of followers: Roller follower – circular cam with straight, concave and convex flanks

Sno	Topic	Page No's	Teaching Aid
1	Definitions of cam and followers – their uses	190-194	Board &Chalk
2	Types of followers and cams	196-199	PPT
3	Terminology	203-207	PROJECTOR
4	Types of follower motion	210-214	Board &Chalk
5	Uniform velocity, Simple harmonic motion	217-221	PROJECTOR
6	uniform acceleration and retardation	224-227	PROJECTOR
7	Maximum velocity and maximum acceleration during outward	229-231	Board &Chalk
8	return strokes in the above 3cases	232-234	PROJECTOR
9	Analysis of motion of followers	236-239	Board &Chalk
10	Roller follower	241-244	Board &Chalk
11	circular cam with straight	246-249	PROJECTOR
12	concave and convex flanks.	252-254	PROJECTOR
13	Introduction, Belt and rope drives	256-259	PROJECTOR
14	selection of belt drive- types of belt drives	262-264	PROJECTOR
15	V- belts, materials used for belt and rope drives, velocity ratio of belt drives,	266-269	Board &Chalk
16	slip of belt, creep of belt, tensions for flat belt drive, angle of contact	271-274	PPT
17	centrifugal tension, maximum tension of belt	276-279	PROJECTOR
18	Chains- length, angular speed ratio, classification of chains.	281-284	Board &Chalk
Total		18	

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur, D.

UNIT – V:

GEARS: Higher pairs, friction wheels and toothed gears–types – law of gearing, condition for constant velocity ratio for transmission of motion, Form of teeth: cycloidal and involute profiles. Velocity of sliding – phenomena of interferences – Methods of interference. Condition for minimum number of teeth to avoid interference, expressions for arc of contact and path of contact – Introduction to Helical, Bevel and worm gearing.

GEAR TRAINS: Introduction to gear Trains, Train value, Types – Simple and reverted wheel train – Epicyclic gear Train. Methods of finding train value or velocity ratio – Epicyclic gear trains. Selection of gear box-Differential gear for an automobile.

Sno	Topic	Page No's	Teaching Aid
1	Higher pairs, friction wheels and toothed gears	286-289	Board &Chalk
2	law of gearing	291-294	PPT
3	condition for constant velocity ratio for transmission of motion.	296-299	PROJECTOR
4	Form of teeth: cycloidal and involute profiles	301-304	Board &Chalk
5	Velocity of sliding – phenomena of interferences	307-309	Board &Chalk
6	Methods of interference	311-314	PPT
7	Condition for minimum number of teeth to avoid interference	317-321	PROJECTOR
8	expressions for arc of contact and path of contact	324-328	Board &Chalk
9	Introduction to Helical, Bevel and worm gearing	331-334	Board &Chalk
10	GEAR TRAINS: Introduction to gear Trains	336-339	PPT
11	Train value, Types – Simple and reverted wheel train	341-344	PROJECTOR
12	Epicyclic gear Train	346-349	Board &Chalk
13	Methods of finding train value or velocity ratio	352-355	PPT
14	Epicyclic gear trains	357-360	PROJECTOR
15	Selection of gear box- Differential gear for an automobile	363-366	Board &Chalk
Total		15	

TEXTBOOKS:

1. Theory of Mechanisms & Machines by Jagadeesh lal, Metropolitan Pvt. Ltd.
2. Theory of Machines by Thomas Bevan/ CBS Publishers

PREPAREDBY	SIGNATURE	APPROVED	SIGNATURES
CH.MALLIKARJU		ME- HOD	
		PRINCIPAL	

Principal
A.M.REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

Principal
A.M.REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING				L : 3 T : 1 P : C : 3
PROGRAM(UG) :ECE Course Code :R20 Course Name :Linear control systems Regulation : R2021043				
Class	**Course Coordinator**	**Section**	**Name of the Faculty**	
II YEAR- II SEM	Mr. CH.Raghunatha babu	A	Mr. CH.Raghunatha babu	

Linear control systems	**COURSEOUTCOME**		
C404.2	This course introduces the concepts of feedback and its advantages to various control systems	Introduction	
C404.2	The performance metrics to design the control system intimae-domain and frequency domain are introduced.	Analysis	
C404.2	Control systems for various applications can be designed using time-domain and frequency domain analysis	Analysis	
C404.2	In addition to the conventional approach, the state space approach for the analysis of control systems is also introduced.	Analysis	

S.No	Course Objective
1	To introduce the concepts of open loop and closed loop systems, mathematical models of mechanical and electrical systems, and concepts of feedback
2	To study the characteristics of the given system in terms of the transfer function and introducing various approaches to reduce the overall system for necessary analysis
3	To develop the acquaintance in analyzing the system response in time-domain and frequency domain in terms of various performance indices
4	To analyze the system in terms of absolute stability and relative stability by different approaches
5	To design different control systems for different applications as per given specifications
6	To introduce the concepts of state variable analysis, design and also the concepts of controllability and observability

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet

UNIT-I

Concepts of System,: Control Systems Open Loop and closed loop control systems and their differences. Different examples of control systems, Feed-Back Characteristics, Effects of feedback. Mathematical models, Differential equations, Impulse Response and transfer functions. Translational and Rotational mechanical systems

S.NO	TOPIC	Page no	Teaching aid
1	Concepts of System	1-2	Board/chalk
2	Control Systems Open Loop and closed loop control systems and their differences	3-5	Board/chalk
3	Different examples of control systems	5-9	Board/chalk
4	Feed-Back Characteristics	11-12	Board/chalk
5	Effects of feedback	13-15	Board/chalk
6	Mathematical models	16-17	Board/chalk
7	Differential equations	17-18	Board/chalk
8	Impulse Response and transfer functions	19-19	Board/chalk
9	Translational and Rotational mechanical systems	20-21	Board/chalk
Total			12

UNIT II – TRANSFER FUNCTION REPRESENTATION

Transfer Function of DC Servo motor - AC Servo motor- Synchro-transmitter and Receiver, Block diagram representation of systems considering electrical systems as examples –Block diagram algebra–Representation by Signal flowgraph-Reduction using mason's gain formula.

TIME RESPONSE ANALYSIS

Standard test signals – Time response of first order systems – Characteristic Equation of Feedback controlsystems, Transient response of second order systems – Time domain specifications – Steady state response - Steady stateerrors and error constants.

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM

S.NO	TOPIC	Page no	Teaching aid
1	Transfer Function of DC Servo motor	22-24	Board/chalk
2	AC Servo motor-	24-27	Board/chalk
3	Synchro-transmitter and Receiver	27-29	Board/chalk
4	Block diagram representation of systems considering electrical systems as examples	29-31	Board/chalk
5	Block diagram algebra	31-33	Board/chalk
6	Standard test signals	45-46	projector
7	Time response of first order systems	47-49	projector
8	domain specifications	50-52	projector
9	Steady state response - Steady stateerrors and error constants	53-55	projector
Total			13

UNIT III – STABILITY ANALYSIS IN S-DOMAIN

The concept of stability – Routh's stability criterion – qualitative stability and conditional stability – limitations of Routh's stability100

Root Locus Technique:

The root locus concept - construction of root loci-effects of adding poles and zeros to G(s) H(s) on the root locus.

S.NO	TOPIC	Page no	Teaching aid
1	The concept of stability	70-72	Board/chalk
2	Routh's stability criterion	73-75	Board/chalk
3	qualitative stability and conditional stability	76-79	Board/chalk
4	limitations of Routh's stability100	80-84	Board/chalk
5	The root locus concept - construction of root loci-effects of adding poles and zeros to G(s) H(s) on the root locus	85-89	Board/chalk
Total			**13**

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt

UNIT IV

Frequency response analysis: Introduction, Correlation between time and frequency response, PolarPlots, BodePlots,Nyquist Stability Criterion

S.NO	TOPIC	Page no	Teaching aid
1	Introduction	110-115	Board/chalk
2	between time and frequency response	116-119	Board/chalk
3	PolarPlots, BodePlots,Nyquist Stability Criterion	120-128	Board/chalk
Total			10

UNIT V – CLASSICAL CONTROL DESIGN TECHNIQUES

Compensation techniques – Lag, Lead, Lead-Lag Controllers design infrequency Domain, PIDControllers. State Space Analysis of Continuous Systems Concepts of state, state variables andstate model, derivation ofstate models from block diagrams, Diagonalization- Solving the Timeinvariant state Equations- State Transition Matrix and it's Properties – Concepts of ControllabilityandObservability

S.NO	TOPIC	Page no	Teaching aid
1	Compensation techniques	22-24	Board/chalk
2	Lag, Lead, Lead-Lag Controllers	24-27	Board/chalk
3	infrequency Domain	27-29	Board/chalk
4	PID Controllers. State Space Analysis of Continuous Systems Concepts of state	29-31	Board/chalk
5	state variables and state model, derivation of state models from block diagrams	31-33	Board/chalk
6	Diagonalization- Solving the Time invariant state Equations	45-46	projector
7	State Transition Matrix and it's Properties – Concepts of Controllability and Observability	47-49	projector
Total			

TEXTBOOKS :

1. Automatic Control Systems 8th edition– by B.C.Kuo – Johnwiley and son's, 2003.
2. Control Systems Engineering –by I. J.Nagrathand M.Gopal, New Age International (P) Limited, Publishers, 2nd edition, 2007
3. Modern Control Engineering–by Katsuhiko Ogata–Pearson Publications, 5th edition, 2015.

PREPAREDBY	SIGNAT	APPROVED	SIGNATURES
CH. Raghunatha Babu		ECE- HOD	
		PRINCIPAL	

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

DEPARTMENTOF COMPUTER SCIENCE&ENGINEERING				L : 4
PROGRAM(UG) :COMPUTER SCIENCE ENGINEERING Course Code :PCC2103 Course Name :OPERATING SYSTEMS Regulation : R20				T : 0 P : 3 C : 3
Class	**Course Coordinator**	**Section**	**Name of the Faculty**	
IIYEAR- I SEM	T. Syam.	A	V. Veerabrahmachari	

COURSE NAME (5901)	COURSEOUTCOME		
C5901.1	Describe various generations of Operating System and functions of Operating System	Evaluate	L1
C5901.2	Describe various generations of Operating System and functions of Operating System	Understanding	L2
C5901.3	Solve Inter Process Communication problems using Mathematical Equations by various methods	Knowledge	L3
C5901.4	Compare various Memory Management Schemes especially paging and Segmentation	Improvement	L4
C5901.5	Operating System and apply various Page Replacement Techniques	Analysis	L5
C5901.6	Outline File Systems in Operating System like UNIX/Linux and Windows	Co-ordinate	L6

S.No	Course Objective
1	CPU scheduling, deadlock, memory management, and file systems
2	Define, explain, processes and threads, mutual exclusion, CPU scheduling, deadlock, memory management, and file systems
3	Understand File Systems in Operating System like UNIX/Linux and Windows
4	Understand Input Output Management and use of Device Driver and Secondary Storage (Disk)Mechanism
5	Analyze Security and Protection Mechanism in Operating System

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

UNIT-I

Operating Systems Overview: Operating system functions, Operating system structure, Operating systems operations, Computing environments, Open-Source Operating Systems. System Structures: Operating System Services, User and Operating-System Interface, systems calls, Types of System Calls, system programs, operating system structure, operating system debugging, System Boot.

S.NO	Topic	Page No's	Teaching Aid
1	Operating Systems Operating Systems	1-3	Block board on chalk
2	Operating system functions	6-8	Power point
3	Operating system structure	12-16	Block board on chalk
4	Operating systems operations,	20-22	Block board on chalk
5	Operating System Services,	26-30	Block board on chalk
6	systems calls	32-34	Power point
7	operating system structure	39-41	Block board on chalk
8	System Boot	46-49	Block board on chalk
Total		14	

UNIT-II

Process Concept: Process scheduling, Operations on processes, Inter-process communication, Communication in client server systems. Multithreaded Programming: Multithreading models, Thread libraries, Threading issues. Process Scheduling: Basic concepts, Scheduling criteria, Scheduling algorithms, Multiple processor scheduling, Thread scheduling. Inter-process Communication: Race conditions, Critical Regions, Mutual exclusion with busy waiting, Sleep and wakeup, Semaphores, Mutexes, Monitors, Message passing, Barriers, Classical IPC Problems - Dining philosophers problem, Readers and writers problem

S.NO	Topic	Page No's	Teaching Aid
1	: Process scheduling	52-55	Block board on chalk
2	Inter-process communication,	60-65	Block board on chalk
3	Multithreaded Programming	68-72	Block board on chalk
4	Thread libraries	74-78	Block board on chalk
5	Multiple processor scheduling,	82-86	Power point
6	Mutual exclusion with busy waiting	88-90	Block board on chalk
7	Semaphores	92-95	Block board on chalk
8	Classical IPC Problems	98-102	Block board on chalk
Total		15	

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM

UNIT-III

Memory-Management Strategies: Introduction, Swapping, Contiguous memory allocation, Paging, Segmentation. Virtual Memory Management: Introduction, Demand paging, Copy on-write, Page replacement, Frame allocation, Thrashing, Memory-mapped files, Kernel memory allocation

S.NO	Topic	Page No's	Teaching Aid
1	Memory-Management Strategies	104-106	Block board on chalk
2	Swapping	109-112	Block board on chalk
3	Contiguous memory allocation	115-117	Block board on chalk
4	Virtual Memory Management	123-125	Power point
5	Demand paging	128-130	Block board on chalk
6	Page replacement	132-136	Block board on chalk
7	Memory-mapped files	139-140	Block board on chalk
8	Kernel memory allocation	141-145	
Total		14	

UNIT: IV

Deadlocks: Resources, Conditions for resource deadlocks, Ostrich algorithm, Deadlock detection and recovery, Deadlock avoidance, Deadlock prevention. File Systems: Files, Directories, File system implementation, management and optimization. Secondary-Storage Structure: Overview of disk structure, and attachment, Disk scheduling, RAID structure, Stable storage implementatio

Sno	Topic	Page No's	Teaching Aid
1	Deadlocks	146-148	Black board on CHALK
2	Ostrich algorithm	149-152	Power point
3	Deadlock detection and recovery	153-158	Black board on CHALK
4	Deadlock avoidance,	159-160	Black board on CHALK
5	File system implementation	161-162	Black board on CHALK Black board on CHALK
6	. Secondary-Storage Structure:	163-165	Black board on CHALK
7	Disk scheduling	166-168	Power point
8	Stable storage implementation	169-172	Power point
Total		14	

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM

UNIT-V

System Protection: Goals of protection, Principles and domain of protection, Access matrix, Access control, Revocation of access rights. System Security: Introduction, Program threats, System and network threats, Cryptography for security, User authentication, Implementing security defenses, Firewalling to protect systems and networks, Computer security classification. Case Studies: Linux, Microsoft Window

Sno	Topic	Page No's	Teaching Aid
1	System Protection:	173-175	Black board on chalk
2	Principles and domain of protection	176-178	Black board on chalk
3	Access matrix	179-180	Black board on chalk
4	System Security	181-183	Power point
5	Implementing security defenses	184-186	Black board on chalk
6	Firewalling to protect systems and networks	187-189	Power point
7	Computer security classification	190-194	Black board on chalk
8	Linux, Microsoft Window	195-201	Black board on chalk
Total		14	

TEXTBOOKS :

1)SilberschatzA, Galvin P B, and Gagne G, Operating System Concepts, 9th edition, Wiley,2013.

2)Tanenbaum A S, Modern Operating Systems, 3rd edition, Pearson Education, 2008. (forInterprocess Communication and Filesystems.)

PREPAREDBY	SIGNATURE	APPROVED	SIGNATURE
MALLIKARJUN		CSE- HOD	
		PRINCIPAL	

Principal
M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur (Dt)

DEPARTMENTOF AGRICULTURAL ENGINEERING	L : 3 T : 0 P : 0 C : 3
PROGRAM(UG): AGE **Course Code** : R2031353 **Course Name** : SURFACE WATER HYDROLOGY **Regulation** : R20	

Class	Course Coordinator	Section	Name of the Faculty
YEAR/SEM: III/I	Mr. N.V. Ashoka	A	Mr. J. Ramanjeneyulu

COURSE	COURSE CODE	COURSEOUTCOME
SWH	PC.1	Analyze probability of rainfall, ReturnPeriod, Plotting position.
SWH	PC.2	Determine net effective rainfall, Peak runoff and Peak runoff rate.
SWH	PC.3	Discuss the factors affecting flood hydrographs, hydrograph Separation for simple and complex storms.
SWH	PC.4	Describe method of superposition, S-Curve and determine duration graphs.
SWH	PC.5	Use the Concepts of Flood raining.

S. No	Course	Objective
1	SWH	To enable the students to acquire knowledge and skills on hydrological (rainfall and runoff) measurements in watersheds, hydrological design of structures, prediction of volume and rates of runoff with tools like hydrographs and unit hydrographs, reservoir planning with flood routing techniques for application in natural resources management.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

UNIT-I

Hydrology - Definition, hydrology cycle and its components. Forms of precipitation rainfall, characteristics of rainfall in India (types of monsoons). Measurement of rainfall – Recording and non-recording rain gauges - Rain gauge network density for different topographic conditions – Point rainfall analysis. Presentation of rainfall data mass curve and hyetograph, Mean precipitation over an area -Arithmetic mean, Thiessen polygon, Isohyetal methods, DAD relationships and curves. Probability analysis of rainfall – Return period, plotting position by Weibull's method, Rainfall events at different probability levels (20%, 40%, 60%, 80%

S. No	Topic	Text Book Page No's	Teaching Aid
1	Hydrology - Definition, hydrology cycle and its components	**1-2**	GB
2	Forms of precipitation rainfall, characteristics of rainfall in India (types of monsoons)	**18-20**	GB
3	Measurement of rainfall – Recording and non-recording rain gauge	**21-24**	GB/PPT
4	Rain gauge network density for different topographic conditions	**25-29**	GB
5	Point rainfall analysis	**30-32**	GB
6	Presentation of rainfall data mass curve and hyetograph	**37-38**	GB
7	Mean precipitation over an area – Arithmetic mean, Thiessen polygon, Isohyetal methods,	**39-44**	GB
8	DAD relationships and curves	**45-46**	GB
9	Probability analysis of rainfall – Return period, plotting position by Weibull's method,	**47-50**	GB
10	Rainfall events at different probability levels (20%, 40%, 60%, 80%)		GB

UNIT-II

Intensity-Duration-Frequency relationship, determination of net effective rainfall-infiltration indices - Phi index. Runoff-definition-components of runoff-direct runoff and base flow, overload flow and interflows, pictorial representation of different routes of runoff. Runoff characteristics of streams – Perennial, intermittent and ephemeral streams, measurement of stream flows. Measurement of stage and velocities, staff gauge, wire gauge, automatic stage recorders, current meters (horizontal and vertical axis meters), calibration (V= a Ns + b). Rainfall-Runoff relations (R=a P + b), curve fitting and determination of 'a' and 'b' and (correlation coefficient), factors affecting runoff. Definition and estimation of peak runoff and design peak runoff rate, rational method and curve number techniques.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur Dt.

S. No	Topic	Page No's	Teaching Aid
1	Intensity-Duration-Frequency relationship	**53-55**	GB
2	determination of net effective rainfall- infiltration indices - Phi index	**56-58**	GB
3	Runoff-definition-components of runoff-direct runoff and base flow, overload flow and interflows, pictorial representation of different routes of runoff.	**60-63**	PPT/GB
4	Runoff characteristics of streams – Perennial, intermittent and ephemeral streams, measurement of stream flows	**64-66**	GB/PPT
5	Measurement of stage and velocities, staff gauge, wire gauge, automatic stage recorders	**70-73**	GB
6	current meters (horizontal and vertical axis meters), calibration (V= a Ns + b).	**80-82**	GB/PPT
7	Rainfall-Runoff relations (R=a P + b), curve fitting and determination of 'a' and 'b' and (correlation coefficient)	**89-92**	GB
8	factors affecting runoff	**95-97**	GB
9	Definition and estimation of peak runoff and design peak runoff rate	**100-102**	GB
10	rational method and curve number techniques	**105-108**	GB

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(Dt)

UNIT-III

Hydrographs - Definitions and components, factors affecting flood hydrographs, hydrograph separation for simple and complex storms – Method I (straight line method, N=b A0.2), other Methods II and III. Unit hydrographs - Concept and the three implications of the definitions and the two basic assumptions (linear response and time invariance). Effects of the characteristics of storms (duration of rain, timeintensity pattern, areal distribution of runoff and amount of runoff) on the shape of the resulting hydrographs. Derivation of unit hydrographs, average unit hydrographs from several storms of the same duration (proper procedure of computing average perk flow and time to peak). Derivation of unit hydrographs for complex storms.

S. No	Topic	Text Book Page No's	Teaching Aid
1	Hydrographs - Definitions and components	240-245	GB/PPT
2	factors affecting flood hydrographs		GB
3	hydrograph separation for simple and complex storms – Method I (straight line method, N=b A0.2),	246-248	GB/PPT
4	hydrograph separation for simple and complex storms Methods II and III.	250-252	GB
5	Unit hydrographs - Concept and the three implications of the definitions and the two basic assumptions (linear response and time invariance).	260-262	GB
6	Effects of the characteristics of storms (duration of rain, timeintensity pattern	270-274	GB
7	areal distribution of runoff and amount of runoff) on the shape of the resulting hydrographs.	280-283	GB/PPT
8	Derivation of unit hydrographs	290-292	GB
9	average unit hydrographs from several storms of the same duration	295-298	GB
10	proper procedure of computing average perk flow and time to peak	300-302	GB
11	Derivation of unit hydrographs for complex storms	303-305	GB
12	Problems on unit hydrographs for complex storms	306-308	GB

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl), Guntur(Dt.)

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl), Guntur(Dt.)

UNIT-IV

Conversion of unit hydrograph duration, methods for unit hydrographs of different durations-Method of superposition and S-curve. S-curve method, explanation of concept and application. conversion of unit graph duration by S-curve method, determination of lower duration graph from the given higher duration graph and vice-versa. Synthetic unit hydrograph, concept, Snyder' synthetic unit hydrograph, formulas relating hydrograph features (basin lag, peak flow and time base of the unit hydrograph). Instantaneous unit hydrograph, concept and application, SCS triangular hydrograph - Application of hydrology - Flood control and regulation, flood mitigation, floodplain mapping, retards

S. No	Topic	Text Book Page No's	Teaching Aid
1	Conversion of unit hydrograph duration	**310-312**	GB/PPT
2	methods for unit hydrographs of different durations	**315-318**	GB
3	explanation of concept and application of Method of superposition	**325-336**	GB/PPT
4	explanation of concept and application of S-curve method		GB
5	conversion of unit graph duration by S-curve method		GB
6	determination of lower duration graph from the given higher duration graph and vice-versa	**340-342**	GB
7	Synthetic unit hydrograph concept	**345-348**	GB/PPT
8	Snyder synthetic unit hydrograph	**350-352**	GB
9	formulas relating hydrograph features (basin lag, peak flow and time base of the unit hydrograph)	**360-362**	GB
10	Instantaneous unit hydrograph, concept and application	**380-382**	GB
11	SCS triangular hydrograph	**390-391**	GB
12	Application of hydrology	**391-400**	GB
13	Flood control and regulation		GB/PPT
14	flood mitigation		GB/PPT
15	floodplain mapping, retards		GB/PPT

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl), Guntur Dt.

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl), Guntur Dt.

UNIT-V

Flood routing - Introduction, two broad categories of flood routing and channel routing, hydrologic routing and hydraulic routing, basic equations. Hydrologic storage routing, Schematic representation of storage routing, modified Pul's method (semi-graphical method). Explanation of the features of the modified Pul's method. Flood routing through a reservoir by modified Pul's method. Applications of hydrology in land and water management, watershed management.

S. No	Topic	Text Book Page No's	Teaching Aid
1	Flood routing - Introduction	**401-403**	GB
2	two broad categories of flood routing and channel routing,	**405-408**	GB
3	hydrologic routing and hydraulic routing	**410-413**	GB/PPT
4	basic equations of Flood Routing	**415-418**	GB
5	Hydrologic storage routing	**420-425**	GB
6	Schematic representation of storage routing	**430-433**	GB
7	modified Pul's method	**434-436**	GB
8	Explanation of the features of the modified Pul's method	**437-440**	GB
9	Flood routing through a reservoir by modified Pul's method	**441-444**	GB
10	Applications of hydrology in land and water management	**445-448**	GB
11	watershed management.	**450-453**	GB

TEXT BOOKS:

1. Engineering Hydrology. Raghunath H.M. 1986. Willey Eastern Limited, New Delhi.
2. Watershed Hydrology, Suresh R. 1997. Standard Publisher and Distributors, New Delhi.

REFERENCES:

1. Engineering Hydrology. Subramanyam K. 1984. Tata Mc. Graw – Hill Publishing Co., Limited, New Delhi.
2. Hydrology for Engineers Linsley R.K. Kohler A. & Paul Hus J.L.H. 1988, Mc-Graw Hill Book Co. New Delhi.
3. Watershed Management. Dhruva Narayana, VV. 1990. ICAR Publication, New Delhi.

PREPAREDBY	SIGNATURE	APPROVED	SIGNATURE
Mr. J. Ramanjeneyulu		AG- HOD	
		PRINCIPAL	

DEPARTMENTOF COMPUTER SCIENCE&ENGINEERING				L : 4
PROGRAM(UG) :CYBER SECURITY Course Code :PCC2103 Course Name :OPERATING SYSTEMS Regulation : R20				T : 0 P : 3 C : 3
Class	**Course Coordinator**	**Section**	**Name of the Faculty**	
IIYEAR- I SEM		A		

COURSENAME (5901)	COURSEOUTCOME		
C5901.1	Describe various generations of Operating System and functions of Operating System	Evaluate	L1
C5901.2	Describe various generations of Operating System and functions of Operating System	Understanding	L2
C5901.3	Solve Inter Process Communication problems using Mathematical Equations by various methods	Knowledge	L3
C5901.4	Compare various Memory Management Schemes especially paging and Segmentation	Improvement	L4
C5901.5	Operating System and apply various Page Replacement Techniques	Analysis	L5
C5901.6	Outline File Systems in Operating System like UNIX/Linux and Windows	Co-ordinate	L6

S.No	Course Objective
1	CPU scheduling, deadlock, memory management, and file systems
2	Define, explain, processes and threads, mutual exclusion, CPU scheduling, deadlock, memory management, and file systems
3	Understand File Systems in Operating System like UNIX/Linux and Windows
4	Understand Input Output Management and use of Device Driver and Secondary Storage (Disk)Mechanism
5	Analyze Security and Protection Mechanism in Operating System

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl),Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl),Guntur(Dt)

UNIT-I

Operating Systems Overview: Operating system functions, Operating system structure, Operating systems operations, Computing environments, Open-Source Operating Systems. System Structures: Operating System Services, User and Operating-System Interface, systems calls, Types of System Calls, system programs, operating system structure, operating system debugging, System Boot.

S.NO	Topic	Page No's	Teaching Aid
1	Operating Systems Operating Systems	1-3	Block board on chalk
2	Operating system functions	6-8	Power point
3	Operating system structure	12-16	Block board on chalk
4	Operating systems operations,	20-22	Block board on chalk
5	Operating System Services,	26-30	Block board on chalk
6	systems calls	32-34	Power point
7	operating system structure	39-41	Block board on chalk
8	System Boot	46-49	Block board on chalk
Total		14	

UNIT-II

Process Concept: Process scheduling, Operations on processes, Inter-process communication, Communication in client server systems. Multithreaded Programming: Multithreading models, Thread libraries, Threading issues. Process Scheduling: Basic concepts, Scheduling criteria, Scheduling algorithms, Multiple processor scheduling, Thread scheduling. Inter-process Communication: Race conditions, Critical Regions, Mutual exclusion with busy waiting, Sleep and wakeup, Semaphores, Mutexes, Monitors, Message passing, Barriers, Classical IPC Problems - Dining philosophers problem, Readers and writers problem

S.NO	Topic	Page No's	Teaching Aid
1	: Process scheduling	52-55	Block board on chalk
2	Inter-process communication,	60-65	Block board on chalk
3	Multithreaded Programming	68-72	Block board on chalk
4	Thread libraries	74-78	Block board on chalk
5	Multiple processor scheduling,	82-86	Power point
6	Mutual exclusion with busy waiting	88-90	Block board on chalk
7	Semaphores	92-95	Block board on chalk
8	Classical IPC Problems	98-102	Block board on chalk
Total		15	

Principal
A.V.REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(D)

Principal
A.V.REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl), Guntur(D)

UNIT-III

Memory-Management Strategies: Introduction, Swapping, Contiguous memory allocation, Paging, Segmentation. Virtual Memory Management: Introduction, Demand paging, Copy on-write, Page replacement, Frame allocation, Thrashing, Memory-mapped files, Kernel memory allocation

S.NO	Topic	Page No's	Teaching Aid
1	Memory-Management Strategies	104-106	Block board on chalk
2	Swapping	109-112	Block board on chalk
3	Contiguous memory allocation	115-117	Block board on chalk
4	Virtual Memory Management	123-125	Power point
5	Demand paging	128-130	Block board on chalk
6	Page replacement	132-136	Block board on chalk
7	Memory-mapped files	139-140	Block board on chalk
8	Kernel memory allocation	141-145	
Total		14	

UNIT: IV

Deadlocks: Resources, Conditions for resource deadlocks, Ostrich algorithm, Deadlock detection and recovery, Deadlock avoidance, Deadlock prevention. File Systems: Files, Directories, File system implementation, management and optimization. Secondary-Storage Structure: Overview of disk structure, and attachment, Disk scheduling, RAID structure, Stable storage implementatio

Sno	Topic	Page No's	Teaching Aid
1	Deadlocks	146-148	Black board on CHALK
2	Ostrich algorithm	149-152	Power point
3	Deadlock detection and recovery	153-158	Black board on CHALK
4	Deadlock avoidance,	159-160	Black board on CHALK
5	File system implementation	161-162	Black board on CHALK Black board on CHALK
6	. Secondary-Storage Structure:	163-165	Black board on CHALK
7	Disk scheduling	166-168	Power point
8	Stable storage implementation	169-172	Power point
Total		14	

UNIT-V

System Protection: Goals of protection, Principles and domain of protection, Access matrix, Access control, Revocation of access rights. System Security: Introduction, Program threats, System and network threats, Cryptography for security, User authentication, Implementing security defenses, Firewalling to protect systems and networks, Computer security classification. Case Studies: Linux, Microsoft Window

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl),Guntur(Dt)

Principal
A.M REDDY MEMORIAL COLLEGE OF ENGINEERING & TECHNOLOGY PETLURIVARI PALEM Narasaraopet (Mdl),Guntur(Dt)

Sno	Topic	Page No's	Teaching Aid
1	System Protection:	173-175	Black board on chalk
2	Principles and domain of protection	176-178	Black board on chalk
3	Access matrix	179-180	Black board on chalk
4	System Security	181-183	Power point
5	Implementing security defenses	184-186	Black board on chalk
6	Firewalling to protect systems and networks	187-189	Power point
7	Computer security classification	190-194	Black board on chalk
8	Linux, Microsoft Window	195-201	Black board on chalk
Total		14	

TEXTBOOKS :

1)SilberschatzA, Galvin P B, and Gagne G, Operating System Concepts, 9th edition, Wiley,2013.

2)Tanenbaum A S, Modern Operating Systems, 3rd edition, Pearson Education, 2008. (forInterprocess Communication and Filesystems.)

PREPAREDBY	SIGNATURE	APPROVED	SIGNATURE
V.V. CHARI		CS- HOD	
		PRINCIPAL	

Principal
V.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)

V.M REDDY MEMORIAL COLLEGE OF
ENGINEERING & TECHNOLOGY
PETLURIVARI PALEM
Narasaraopet (Mdl),Guntur(Dt)