

SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous)

Accredited by NBA, AICTE, NEW DELHI • Accredited by NAAC with "A" Grade – 3.32/4.00 CGPA
Recognized by UGC Under Sections 2(1) & 12 (8) of UGC Act 1986
Approved by AIGTE, New Delhi, Permanent Affiliated to JNTU K, Kakinada
Seetharampuram, NARSAPUR-534 280, W.G-Dist., Andhra Pradesh

DEPARTMENT OF S & H TEACHING PLAN

SLOVEDUS N. A. C. S. C. S. P. P. PERCEAUG. A MANOR PROPERTY ASSOCIATION OF THE SECOND STREET, AND ADDRESS OF		CONCRETE SERVICES AND ASSESSED RESERVED BY OFFICE AND ASSESSED BY ASSESSED BY A PART OF THE ASSESSED BY ASSESSED BY A PART OF THE ASSESSED BY A PART		Contact Periods/ Week	Academic Year	Date of Commencement of Semester				
		ATION QUES	II/IV	AIML, IT,CSE- DS	60/6	2024-25	16-12-2024			
Cour	se Outco	mes: After s	Hecessful	completion of	this course.	students should be a	hle to			
200	COL	state and fo design vari	rmulate that	ne optimizati	on problem,	without and with c	constraints, b			
2	CO2.	apply class	ical optin	nization techn	niques to mi	nimize or maximiz	e a multi-vai	riable	;	
3	CO3:	Sojective II	Solve trans	Sportation and	n constraint	s, and arrive at an o t problem by using	intimal calut	100 (K 31	
4	CO4:	apply grad	ient and r	on-gradient i	nethods to r	onlinear optimizat	ion problem	s and	use	- (00)
5	p cos:	formulate a	ind apply gincering	Dynamic pro design probl	gramming t	traints to derive the echnique to invente each a final optima	ary control	arodi	etion	3)
Unit	Ou	itcome/ n's Level	Topics No.		Topics/Ac	tivity	Text Book/ Reference	Cor Ho	ntact	Delivery Method
			UNIT I	: Introduction	n and Clas	sical Optimization	Technique	S		
			1.1	Introduction	n to Optimiz	ation techniques	T_1,R_1,R_2	1		PPT,BB
	CO1:Students are able toState and formulate	1.2	Statement of	f an Optimi	zation problem	T_1,R_1,R_2	1		PPT,BB	
		1.3	The second secon	ector, des inction surfa		T ₁ ,R ₁ ,R ₂	1		РРТ,ВВ	
	The second secon	the optimization	1.4	constraint s	urface, object	ctive function	T_1,R_1,R_2	1		PPT,BB
1	problem, without and with constraints, by using design	1.5	classificatio	n of Optimi	zation problems	T_1,R_1,R_2	1		PPT,BB	
			classificatio	n of Optimi	zation problems	T_1,R_1,R_2	1		PPT,BB	
		1.6	Single varia	ble Optimiz	Fechniques: ationwithout	T ₁ ,R ₁ ,R ₂	1	12	PPT,BB	
				Multi varial	ole Optimiza	tion without	T_1,R_1,R_2	1		PPT,BB
	variabl	es from	1.7	constraints						
	variabl	es from gineering	1.7	constraints		nt conditions for	T ₁ ,R ₁ ,R ₂	1		РРТ,ВВ

		1.10	Solution by method of Lagrange multipliers,	T ₁ ,R ₁ ,R ₂	1		PPT,BB
	- <u>/ - </u>	1.11	multivariable Optimization with inequality constraints, Kuhn – Tucker conditions	T ₁ ,R ₁ ,R ₂	1		PPT,BI
		UNIT	II: Linear Programming			1	
		2.1	Introduction to linear programming	T_1,R_1,R_2	1		PPT,B
	CO2: Students	2.2	Standard form of a linear programming problem	T_1,R_1,R_2	1	1 1 1 1 1 1 12	PPT,B
	are able toapplyclassical		Problems on linear Programming	T_1,R_1,R_2	1		PPT,B
	optimization techniques to minimize or	2.3	Geometry of linear programming problems,	T ₁ ,R ₁ ,R ₂	1		PPT,B
_	maximize a	2.4	definitions and theorems	T_1, R_1, R_2	1		PPT,Bl
2	multi-variable objective	2.5	Solution of a system of linear simultaneous equations	T ₁ ,R ₁ ,R ₂	1		PPT,BI
	function, without or with		Problems on solution of a system of linear simultaneous equations	T_1,R_1,R_2	1		PPT,BI
	constraints, and arrive at an optimal solution.(K3)	2.6	Pivotal reduction of a general system of equations,	T_1,R_1,R_2	1		PPT,BI
			Problems on pivotal reduction of a general system of equations,	T_1,R_1,R_2	1		PPT,BI
		2.7	Motivation to the simplex method	T_1,R_1,R_2	1		PPT,BI
		2.8	Simplex algorithm.	T_1,R_1,R_2	1		PPT,BI
			Problems on simplex algorithm	T_1,R_1,R_2	1		PPT,BI
		UNIT	III: Transportation Problem				
		3.1	Introduction toTransportation Problem	T_1, R_1, R_2	1		PPT,BI
	CO3: Students are able to apply and Solve transportation and assignment problem by using Linear programming Simplex method. (K3)	3.2	Finding initial basic feasible solution by	T_1,R_1,R_2	1		PPT,BI
			north – west corner rule				
- "			Problems on Finding initial basic feasible solution by north – west corner rule	T ₁ ,R ₁ ,R ₂	1		PPT,BI
		3.3	Problems onnorth – west corner rule	T_1,R_1,R_2	1		PPT,B
			least cost method, related problems	T_1,R_1,R_2	1		PPT,BI
			Problems on least cost method	T_1,R_1,R_2	1		PPT,BI
3		3.4	Vogel's approximation method,related problems	T_1,R_1,R_2	1	12	PPT,BI
			Problems on Vogel's approximation method	T_1,R_1,R_2	1		PPT,BI
		3.5	Testing for optimality of balanced transportation problems	T_1,R_1,R_2	1		PPT,BI
		3.6	Optimality of balanced transportation problems	T_1,R_1,R_2	1		PPT,BI
		3.7	Special cases in transportation problem.	T_1,R_1,R_2	1		PPT,BI
		3.8	Problems on Special cases in transportation problem	T_1,R_1,R_2	1		PPT,BI
	CO4:Students	UNIT	IV: Nonlinear Programming				
	are able to Apply gradient	4.1	Introduction toNonlinear Programming	T_2,R_2,R_3	1		PPT,B
		4.2	Unconstrained cases	T_2, R_1, R_2	1	1	PPT,B

gradient methods to nonlinear optimization problems and use interior or exterior penalty functions for	10.							
methods nonlinear to nonlinear optimization problems and use interior or exterior penalty functions for the constraints to derive the optimal solutions, (K3) CO5:Students are able to Formulate and apply Dynamic programming technique to inventory control, production planning, engineering design problems etc. to reach a final optimal solution. (K3) Text Books: S. No. Authors, Book Title, Edition, Publisher, Year of Publication Microsci descence descence in method of the constraints of the constraints to derive the optimal solution. (K3) 4.4 Bisic approach of Penalty Function methods of the constraints to derive the optimal solutions. (K3) 4.5 Basic approach of Penalty Function methods of the constraints	10.794.01900	HOD-	4.3	One – dimensional minimization	T ₂ , R ₁ ,R ₂	1		PPT,BB
nonlinear optimization problems and use interior or exterior penalty functions for the constraints to derive the optimal solutions, (K.3) COS:Students are able to Formulate and apply Dynamic programming technique to inventory control, production planning, engineering design production from the current optimal solution. (K.3) Multistage decision processes, types to reach a final optimal solution. (K.3) Text Books: S. No. Authors, Book Title, Edition, Publisher, Year of Publication A. Univariate method 4. Univariate method 4. Univariate method 4. Univariate method 4. Susciparyoache sees. Characteristics of a constrained problem. Classification 4. Basic approaches of Penalty Function methods 4. Basic approaches of Interior and Exterior penalty function methods 4. Basic approaches of Interior and Exterior penalty function methods 4. Basic approaches of Interior and Exterior penalty function methods 4. Basic approaches of Interior and Exterior penalty function methods 4. Basic approaches of Interior and Exterior penalty function methods 4. Dynamic Programming 5. Introduction toDynamic Programming 5. Introduction toDynamic Programming 7. R ₁ , R ₂ 1 Problems on Dynamic programming 7. R ₁ , R ₂ 1 Problems on Dynamic programming 7. R ₁ , R ₂ 1 Problems on Dynamic programming 7. R ₁ , R ₂ 1 Problems on Dynamic programming 8. Multistage decision processes, types 1. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of optimality 7. R ₁ , R ₂ 1 Problems on Principle of op		ethod-		methods: Classification			Commercial	PPT,BB
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4.6 steepest descent method exterior penalty functions for the constraints to derive the optimal solutions.(K3) CO5:Students are able to Formulate and apply Dynamic programming technique to inventory control, production planning, engineering design problems etc. to reach a final optimal solution. (K3) CO5:Students are able to Formulate and apply Dynamic programming technique to inventory control, production planning, engineering design officent to reach a final optimal solution from the current optimal solution. (K3) Authors, Book Title, Edition, Publisher, Year of Publication 4.6 steepest descent method Constrained problems classification to constrained problems classification Tz, R ₁ ,R ₂ 1 problems on Basic approach of Penalty Function method 4.7 Basic approaches of Interior and Exterior penalty function methods 4.8 Basic approaches of Interior and Exterior penalty function methods 4.8 Basic approaches of Interior and Exterior penalty function methods 4.9 Problems on Basic approaches of Interior and Exterior penalty function methods 4.9 Problems on Basic approaches of Interior and Exterior penalty function methods 4.9 Problems on Basic approaches of Interior and Exterior penalty function methods 4.9 Problems on Basic approaches of Interior and Exterior penalty function methods 4.9 Problems on Basic approaches of Interior and Exterior programming Tz, R ₁ ,R ₂ 1 Problems on Basic approaches of Interior and Exterior programming Tz, R ₁ ,R ₂ 1 Problems on Basic approaches of Interior and Exterior penalty function methods 4.8 Basic approaches of Interior and Exterior Tz, R ₁ ,R ₂ 1 Problems on Basic approaches of Interior and Exterior penalty function methods 4.8 Basic approaches of Interior and Exterior penalty function methods 4.8 Basic approaches of Interior and Exterior penalty function methods 4.8 Basic approaches of Interior and Exterior penalty function methods 4.8 Date of Problems of Penalty function methods 5.1 Introduction toDynanic Programming Tz, R ₁ ,R ₂ 1 Problems on Dynanic	pro	oblems and	4.5	Univariate method	T_2 , R_1 , R_2	1		PPT,BB
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