					CAND	T TINITY	EDCITY										
			E	ACII			ERSITY	CV									
Dusseus						NG & TECHNOLOGY Propole/Specific Propole Propole											
	Programme Bachelor of Technology Someotor VII						Branch/Spec.	Biomedical Engineering									
Semester VII							Version 1.0.0.0										
Effective from Academic Year 2025-26							Effective for the batch Admitted n July 2										
Subject code2BM7106Subject NameBiological Digital Image ProcessingTeaching schemeExamination scheme (Marks)										5							
			(DE)		. 17 1)	Examination scheme (Marks)											
(Per w	reek)	-			actical(Lab.)	Total	CE SEE		Total								
		L	TU	P	TW												
Credit		3 - 1 - 4 Theory 40 60							100								
Hours		3	-	2	-	5	Practical	30	20	50							
Pre-requisites Pre-requisites																	
Good Knowledge of Physics and Mathematics, Fundamental of Medical Imaging.																	
Course Outcomes																	
On successful completion of the course, the students will be able to:																	
CO1	Unde	rstand	the role ar	nd fu	ndamental of c	lifferent c	components of a dig	ital ima	age process	ing.							
CO2	Apply and Evaluate the various spatial and frequency domain image enhancement techniques.																
CO3																	
ı	enha	ncemei															
CO4																	
ı	morphology.																
CO5	1 0,																
CO6																	
	CO6 Remember the various techniques for color image processing. Theory syllabus																
Unit	Content																
	DIGITAL IMAGE FUNDAMENTALS:																
1	Defin	Definition: Image, Digital image, Pixel, Image Acquisition and Display System, Digital image															
	repres	entatio	n and its c	hara	cteristics and i	mage qua	ality, Types of Imag	es, Fu	ndamental	steps in							
	image	proce	ssing, Eler	nents	of visual per	ception,	representation and its characteristics and image quality, Types of Images, Fundamental steps in image processing, Elements of visual perception, Image format and image data types, Image										
	proce	processing applications, image sampling and quantization, some basic relationships between															
,	pixels																
IMAGE ENHANCEMENT IN SPATIAL DOMAIN:																	
	IMAC						ntization, some bas										
2		SE ENI	HANCEMI	ENT	IN SPATIAL	DOMAIN	ntization, some bas	ic rela	tionships b	oetween	00						
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	COLOR IMAGE PROCESSING:								
7	Color Fundamentals, Color Models, Pseudo-color Image Processing, Basic of Full Color image								
	Processing.								
	IMAGE COMPRESSION & TRANSFORM:								
8	Need for data compression, Types of Redundancy, Huffman, Run Length Encoding and	04							
	Arithmetic coding. Basics of Discrete Cosine Transform & Wavelet Transform.								
Practical content									
Term Work and Practical shall be based on the above syllabus.									
Text Books									
1 Digital Image Processing by Gonzalez, Woods, Pub.: Pearson education.									
2 Image Processing, Analysis & Machine Vision by Milan Sonka, Pub.: Thomson Publication.									
Reference Books									
1	Fundamentals of Digital Image Processing by Anil K. Jain, Pub.: Pearson Education.								
2	Digital Image Processing by Willian K. Pratt, Pub.: John Wile.								
3	3 Digital Image Processing by S,Sridhar, Pub.: Oxford University Press.								
ICT/MOOCs Reference									
1	https://nptel.ac.in/courses/117/105/117105079/								
2	2 https://nptel.ac.in/courses/117/105/117105135/								
3	https://nptel.ac.in/courses/106/105/106105032/								

Mapping of CO with PO and PSO:															
	P01	P02	P03	P04	POS	P06	P07	PO8	PO9	PO10	P011	P012	PS01	PSO2	PSO3
CO1	1	0	0	0	0	0	1	0	0	1	0	2	1	0	0
CO2	3	1	2	1	0	0	2	0	0	0	1	3	2	2	1
CO3	2	1	2	1	0	0	1	0	0	0	1	3	3	2	0
CO4	3	1	1	1	0	0	0	0	0	0	0	1	1	2	1
CO5	2	1	1	1	0	0	0	0	0	0	0	1	2	1	0
CO6	1	1	1	1	0	0	0	0	0	0	0	1	1	1	0