

Programme Name: B.Sc. Nanoscience and Nanotechnology Level 4.5 (Semester – I)

					ching Hrs./V			Exa	amina	ntion Sche	eme	
Sr. No.	Core	Course Code	e Course Name		Т	P	C	Formative Assessment CIA		Summative Assessment ESE		Total Marks
								Course	Lab	Course	Lab	
	MAJOR(MANDATORY + ELECTIVES)											
1	Major	NYNT101	Introduction to Nanoscience	3	-	-	3	50	-	100	-	100
2	2 Major NYNT102 Physico-Chemical aspects of Nanoscience and Nanotechnology					1	3	50	1	100	ı	100
MIN	OR: NA											
			NA									
Open	Electives(OI	E)*										
3	Mandatory		Open Elective – I	4	-	-	4	50	-	100	-	100
Voca	tional and Sk	ill Enhanceme	ent (VSEC)									
4	VSC	NYNT111	Nanoscience Fundamentals Laboratory	-	-	4	2	-	50	-	50	100
5	SEC	NYNT112	Physico-Chemical Characterization Laboratory	-	-	4	2	-	50	1	50	100
Abili	ty/Value Edu	cation Course	es/ Indian Knowledge System(AEC/VEC/IKS)*									
6	AEC		Ability Enhancement Courses – I	-	-	4	2	-	50	-	50	100
7	VEC		Value Education Courses- I	-	-	4	2	-	50	-	50	100
8	IKS		Indian Knowledge System	-	-	4	2	-	50	-	50	100
OJT/	FP/CEP/CC/	RP										
9	CC		Co-Curricular Course II	1	-	4	2	-	50	1	50	100
			TOTAL	12	-	20	22	150	300	300	300	900

CIA: Continuous Internal	OJT – On Job Training FP – Field Project	CIA	Weightage	Description
Assessment	CEP – Community	CIA 1	10%	Home Assignment
ESE: End Semester Theory Exam.	Engagement Project	CIA 2	20%	Mid-Term Exam (MTE)
L: Theory Lecture,	CC – Curricular Course RP – Research Project	CIA 3	10%	Activity/Project and research based learning along with seminar presentation
T: Tutorial, P: Practical	* - Refer University Notification	CIA 4	10%	Behavioural Attitude +General Discipline Theory +Practical attendance
27.2.440.4642	rounculon	CIA TOTAL	50%	
Written	Examination - End Semester	Exam (ESE)	50%	
		TOTAL	100%	

Batch: AY 25-26 onwards



Programme Name: B.Sc. Nanoscience and Nanotechnology Level 4.5 (Semester – II)

For the Batch: AY 25-26 onwards

					aching (Hrs./			Exa	mina	tion Sch	eme	
Sr. No.	Core	Course Code	Course Name	L	Т	P	C	Formative Assessment CIA		Summative Assessment ESE		Total Marks
								Course	Lab	Course	Lab	
MAJ	OR(MANDA	TORY + ELEC	CTIVES)									
1	Major	NYNT201	Material Science	3	-	-	3	50	-	100	-	100
2	Major	NYNT202	Properties of Nanomaterials	3	-	-	3	50	-	100	-	100
MIN	OR								•			
3	Minor		Minor I	2	-	-	2	50	-	100	-	100
Open	Open Electives(OE)*											
4	Mandatory		Open Elective – II	4	-	-	4	50	-	100	-	100
Voca	tional and Sk	ill Enhanceme	nt (VSEC)									
5	SEC	NYNT211	Material Science Laboratory	-	1	4	2	-	50	-	50	100
6	VSC	NYNT212	Nanomaterials Property Characterization Laboratory	-	-	4	2	-	50	-	50	100
Abili	ty/Value Edu	cation Courses	s/ Indian Knowledge System(AEC/VEC/IKS)*	•								
7	AEC		Ability Enhancement Courses – II	-	-	4	2	-	50	-	50	100
8	VEC		Value Education Courses- II	-	-	4	2	-	50	-	50	100
OJT/	FP/CEP/CC/	RP		l.					I			
9	CC		Co-Curricular Course II	-	-	4	2	-	50	-	50	100
			TOTAL	12	1	20	22	200	250	400	250	900

CIA: Continuous Internal	OJT – On Job Training	CIA	Weightage	Description
Assessment	FP – Field Project CEP – Community	CIA 1	10%	Home Assignment
ESE: End Semester Theory Exam.	Engagement Project CC – Curricular Course RP – Research Project	CIA 2	20%	Mid-Term Exam (MTE)
L: Theory Lecture,		CIA 3	10%	Activity/Project and research based learning along with seminar presentation
T: Tutorial, P: Practical	* - Refer University Notification	CIA 4	10%	Behavioural Attitude +General Discipline Theory +Practical attendance
1. Hactical	Notification	CIA TOTAL	50%	
Written I	Examination – End Semester	Exam (ESE)	50%	
	<u> </u>	TOTAL	100%	

Exit option: Award of UG Certificate with 44 Credits.

BOS Chairperson Dean School of Science Associate Dean Curriculum Development Registrar Sandip University



Programme Name: B.Sc. Nanoscience and Nanotechnology Level 5.0 (Semester – III)

For the Batch: AY 25-26 onwards

				S	each chei s./W	me	:)		Examination Scheme					
Sr. No.	Core	Course Code	Course Name	L	Т	P	C		mative ssment	Summative Assessment ESE		Total Marks		
								Course	Lab	Course	Lab			
MAJOR (M	IANDATORY	+ ELECTIVE	CS)											
1	Major		Physical Techniques for synthesis of Nanomaterials	4	-	-	4	50		100		100		
2	Major	NIV NIT2IV	Advanced Techniques for Characterization of Nanomaterials	4	-	-	4	50		100		100		
MINOR														
3	Minor		Minor II	4			4	50		100		100		
Open Electi	ives (OE)*									•				
4	Mandatory		Open Elective - III	2			2	50		100		100		
Vocational	Skill Course (VSC)								•				
5	VSC	NYNT311	Characterization Techniques Laboratory			4	2		50		50	100		
Ability/Val	ue Education (Courses/ India	n Knowledge System(AEC/VEC/I	KS)*					I.	ľ				
6	AEC		Ability Enhancement Courses - III			4	2		50		50	100		
OJT/FP/CF	EP/CC/RP									·				
7	FP	NYNT312	Field Project			4	2		50		50	100		
8	CC		Co – curricular course III			4	2		50		50	100		
	<u>'</u>		TOTAL	14	-	16	22	200	200	400	200	800		

CIA: Continuous Internal Assessment ESE: End Semester Theory Exam.	OJT – On Job Training FP – Field Project	CIA	Weightage	Description
, and the second	CEP – Community	CIA 1	10%	Home Assignment
L: Theory Lecture,	Engagement Project	CIA 2	20%	Mid-Term Exam (MTE)
T: Tutorial,	CC – Curricular Course	CIA 3	10%	Activity/Project and research based learning
P: Practical	RP - Research Project	CITO	1070	along with seminar presentation
	* - Refer University Notification	CIA 4	10%	Behavioural Attitude +General Discipline
	Notification	CIII +	1070	Theory +Practical attendance
		CIA TOTAL	50%	
	Written Examination - End S	Semester Exam (ESE)	50%	
	_	TOTAL	100%	



Programme Name: B.Sc. Nanoscience and Nanotechnology Level 5.0 (Semester – IV)

For the Batch: AY 25-26 onwards

				S	each Schei	_)	E	— Total Mark s			
Sr. No.	Core	Course Code	Course Name		L T		C			native ssment A	Summative Assessment ESE	
								Course	Lab	Course	Lab	
MAJOR (M	IANDATORY + I	ELECTIVES	5)									
1	Major	NYNT401	Organic and polymer science of nanomaterials	4	-	-	4	50		100		100
2	Major	NYNT402	Polymer and Composites	4	-	-	4	50		100		100
MINOR						ı						
3	Minor		Minor III	4			4	50		100		100
Open Electi	ves (OE)*					ı						
4	Mandatory		Open Elective – IV	2			2	50		100		100
Skill Enhar	ncement Course (S	SEC)										
5	SEC	NYNT411	Computer Simulations in Nanoscience			4	2		50		50	100
Ability/Valu	ie Education Cou	rses/ Indian	Knowledge System (AEC/VEC/I	KS)*								
6	AEC		Ability Enhancement Courses – IV			4	2		50		50	100
OJT/FP/CE	CP/CC/RP											
7	CEP	NYNT412	Community Engagement Project			4	2		50		50	100
8	CC		Co – curricular course IV			4	2		50		50	100
			TOTAL	14	1	16	22	200	200	400	200	800

CIA: Continuous Internal Assessment ESE: End Semester Theory Exam.	OJT – On Job Training FP – Field Project	CIA	Weightage	Description			
v	CEP – Community	CIA 1	10%	Home Assignment			
L: Theory Lecture,	Engagement Project	CIA 2	20%	Mid-Term Exam (MTE)			
T: Tutorial,	CC - Curricular Course	CIA 3	10%	Activity/Project and research based learning			
P: Practical	RP - Research Project	CIAS	1070	along with seminar presentation			
	* - Refer University	CIA 4	10%	Behavioural Attitude +General Discipline			
	Notification	CIA +	1070	Theory +Practical attendance			
		CIA TOTAL	50%				
	Written Examination – End S	Semester Exam (ESE)	50%				
		TOTAL	100%				

Exit option: Award of UG Diploma with 88 Credits.



Programme Name: B.Sc. Nanoscience and Nanotechnology Level 5.5 (Semester - V)

For the Batch: AY 25-26 onwards

							-	g Sche Week)]	Examinat	tion Schem	e	
Sr. No.	Core	Course Code		Course N	ame	L	T	P	C		mative ssment IA	1.7	mative ssment E	Total Marks
										Course	Lab	Course	Lab	
MAJOF	R (MANDA	ATORY + ELF	ECTIVE	S)										
1	Major	NYNT501	Nanophy	ysics		4	-	-	4	50	-	100	-	100
2	Major	NYNT502	Nanobio	technology	7	4	-	-	4	50		100		100
3	Major	NYNT511	Thin Film Deposition and Analysis Lab			-	-	4	2		50		50	100
Major I	Elective- I													
4	Major	NYNTE	Major E	lective – I		4	-	-	4	50	-	100	-	100
Minor														
5	Minor		Minor I	V		4			4	50		100		100
Vocatio	nal Skill C	ourses (VSC)	•											
6	VSC	NYNT512		anofabricat om Practice		-	-	4	2		50		50	100
Ability 1	Enhancem	ent Course (A	EC)											
7	AEC	NYNT513	AEC-V			-	-	4	2		50		50	100
FP/CEP	•		•											
8	FP / CEP	NYNT514		oject /Com nent Projec	-			4	2		50		50	100
					TOTAL	16	-	16	24	200	200	400	200	800
	ntinuous Inter d Semester Tl	rnal Assessment heory Exam.		OJT – On Jo	roject		CI		,	Weightage			cription	
L: Theor	y Lecture,	CEP – Comi	t Project		CIA CIA			10% 20%		Mid-Term	ssignment Exam (MTE			
RP - Res					cular Course cch Project		CIA	13		10%		y/Project and along with sen	ninar presen	tation
	•			* - Refer Un Notification			CIA			10%	Beha	avioural Attitud Theory +Prac		
				Written Fv	amination – End		CIA T		E)	50% 50%	_			
				wiitten Ex	аншаноп – ЕПО	Semes	TO1			100%				
		Course Code				Major Elective I								
		NYNTE01				durface and Interface Science								
		NYNTE02				Janotechnology								
		NYNTE03			Thin Film Te	echno]	logy							



For the Batch: AY 25-26 onwards

Programme Name: B.Sc. Nanoscience and Nanotechnology Level 5.5 (Semester – VI)

				S	each Schei s./W	me	.)	E	Total			
Sr. No.	Core	Course Code	Course Name	L	L T		C		native ssment A	Assess	Summative Assessment ESE	
								Course	Lab	Course	Lab	
MAJ	AAJOR (MANDATORY + ELECTIVES)											
1	Major	NYNT601	Functional Nanomaterials	4	-	ı	4	50		100		100
2	Major	NYNT602	Application of Nanotechnology	4	-	-	4	50		100		100
3	Major	NYNT61	Nanoelectronics & Optical Lab	-	-	4	2		50		50	100
Majo	r Elective	– II										
4	Major	NYNTE	Major Elective – II	4	-	-	4	50	-	100	-	100
Mino	r											
5	Minor		Minor VI	4			4	50		100		100
Abili	ty Enhand	cement Co	urse (AEC)									
6	AEC	NYNT612	AEC-IV			4	2	-	50		50	100
OJT												
7	OJT	Γ NYNT613 On Job Training				8	4		50		50	100
		•	TOTAL	16	-	16	24	200	150	400	150	700

CIA: Continuous Internal Assessment ESE: End Semester Theory Exam.	OJT – On Job Training FP – Field Project	CIA	Weightage	Description
v	CEP – Community	CIA 1	10%	Home Assignment
L: Theory Lecture,	Engagement Project	CIA 2	20%	Mid-Term Exam (MTE)
T: Tutorial,	CC – Curricular Course			Activity/Project and research
P: Practical	RP - Research Project	CIA 3	10%	based learning along with seminar
2.11400004	* - Refer University			presentation
	Notification			Behavioural Attitude +General
		CIA 4	10%	Discipline
				Theory +Practical attendance
		CIA TOTAL	50%	
	Written Examination - End	Semester Exam (ESE)	50%	
		TOTAL	100%	

Course Code	Major Elective II
NYNTE04	Nanocatalysis
NYNTE05	Energy Materials and Applications
NYNTE06	Nanophotonics and Plasmonics

Exit option: Award of UG Degree with 132 Credits.



School of Science Department of Physics

NEP 2020 - Course Structure

Programme Name: B.Sc. Nanoscience and Nanotechnology Level 6.0 (Semester – VII) (UG Honours)
For the Batch: AY 25-26 onwards

C				Teachi	ng Scho	eme (H	rs./Week)	Exam	inatio	1 Scheme	;	
Sr No	Core	Course Code	Course Name	L	Т	P C		Formative Assessment CIA		Sumn Asses: ESI	sment	Total Marks
								Course	Lab	Course	Lab	
MA	JOR (M	IANDATO	RY + ELECTIVES)									
1	Major	NYNT701	Advanced Nanomaterials (2D Materials, Carbon- based)	4	-	-	4	50		100		100
2	Major	NYNT702	Computational Nanoscience	4	-	-	4	50		100		100
3	Major	NYNT703	Micro and Nano Electro- Mechanical Systems	4			4	50		100	-	100
4	Major	NYNT711	Nanoscience and Nanotechnology Laboratory I	-	-	4	2		50		50	100-
Maj	or Elec	tive – III										
5	Major	NYNTE	Major Elective – III	4	-	-	4	50	-	100	-	100
Min	or											
6	Minor	17RDP101	Research Methodology	4			4	50		100		100
			TOTAL	20	-	4	22	250	50	500	50	600

CIA: Continuous Internal Assessment ESE: End Semester Theory Exam.	OJT – On Job Training FP – Field Project	CIA	Weightage	Description
, and the second	CEP - Community	CIA 1	10%	Home Assignment
L: Theory Lecture,	Engagement Project	CIA 2	20%	Mid-Term Exam (MTE)
T: Tutorial,	CC – Curricular Course			Activity/Project and research
P: Practical	RP – Research Project * - Refer University	CIA 3	10%	based learning along with seminar
2.11000001				presentation
	Notification			Behavioural Attitude +General
		CIA 4	10%	Discipline
				Theory +Practical attendance
		CIA TOTAL	50%	
Written Examination - End S		Semester Exam (ESE)	50%	1
		TOTAL	100%	1

Course Code	Major Elective III
NYNTE07	Nanomedicine and Therapeutics
NYNTE08	Photonic Crystals and Metamaterials
NYNTE09	Environmental Nanotechnology



Programme Name: B.Sc. Nanoscience and Nanotechnology Level 6.0 (Semester – VIII) (UG Honours)
For the Batch: AY 25-26 onwards

				Teaching Scheme (Hrs./Week)				Examination Scheme				
Sr. No.	Core	Core Course Course Name L T		L T		P C	Formative Assessment CIA		Summative Assessment ESE		Total Marks	
								Course	Lab	Course	Lab	
MAJ	OR (MAI	NDATORY	y + ELECTIVES)									
1	Major	NYNT801	Nanoelectronics and Spintronics	4	-	-	4	50	-	100		100
2	Major	NYNT802	Smart Materials and Devices	4	-	1	4	50	-	100		100
3	Major	NYNT803	Nanotoxicology and Environmental Safety	4	-		4	50	-	100		100
4	Major	NYNT811	Nanoscience and Nanotechnology Laboratory II	-	-	4	2		50		50	100
Majo	r Elective	e – IV										
4	Major	NYNTE	Major Elective – IV	4	-	1	4	50	-	100	-	100
OJT												
6	OJT	NYNT812	On Job Training			8	4		50		50	100
			TOTAL	16	-	12	22	200	100	400	100	600

CIA: Continuous Internal Assessment	OJT – On Job Training FP – Field Project	CIA	Weightage	Description
ESE : End Semester Theory Exam.	CEP – Community	CIA 1	10%	Home Assignment
L: Theory Lecture,	Engagement Project	CIA 2	20%	Mid-Term Exam (MTE)
T: Tutorial,	CC – Curricular Course			Activity/Project and research
P: Practical	RP – Research Project * - Refer University Notification	CIA 3	10%	based learning along with seminar
2.11464641				presentation
				Behavioural Attitude +General
		CIA 4	10%	Discipline
				Theory +Practical attendance
		CIA TOTAL	50%	
Written Examination – End Semester Exam (ESE)				
		TOTAL	100%	

Course Code	Major Elective IV
NYNTE10	Quantum Field Theory for Nanoscience
NYNTE11	Plasmonics and Nano-Optics
NYNTE12	Industrial Nanotechnology and IPR

Exit option: Award of UG Honours with 176 credits.



NEI 2020 - Course Stru

Programme Name: B.Sc. Nanoscience and Nanotechnology Level 6.0 (Semester – VII) (UG Honours with Research)
For the Batch: AY 25-26 onwards

	Sr. Course		S	each schei	me	x)	Examination Scheme					
Sr. No.	Core	e Code Course Name		C	Formative Assessment CIA		Summative Assessment ESE		Total Marks			
								Course	Lab	Course	Lab	
MAJO	MAJOR (MANDATORY + ELECTIVES)											
1	Major	NYNT701	Advanced Nanomaterials (2D Materials, Carbon-based)	4	-	-	4	50		100		100
2	Major	NYNT702	Computational Nanoscience	4	-	-	4	50		100		100
3	Major	NYNT712	Nanoscience and Nanotechnology Laboratory III			4	2		50		50	100
Major	Elective -	III								_		
5	Major	NYNTE	Major Elective – III	4	1	-	4	50	-	100	-	100
Minor												
6	Minor	17RDP101	Research Methodology	4			4	50		100		100
Resear	ch Project											
					1			I I			1 1	
7	RP	NYPH713	Research Project – I			8	4		50		50	100
TOTAL 16 - 12 22 200 100 400 100								600				

Course Code	Major Elective III
NYNTE07	Nanomedicine and Therapeutics
NYNTE08	Photonic Crystals and Metamaterials
NYNTE09	Environmental Nanotechnology

CIA: Continuous Internal Assessment ESE: End Semester Theory Exam.	OJT – On Job Training FP – Field Project	CIA	Weightage	Description
	CEP – Community	CIA 1	10%	Home Assignment
L: Theory Lecture,	Engagement Project	CIA 2	20%	Mid-Term Exam (MTE)
T: Tutorial,	CC - Curricular Course			Activity/Project and research
P: Practical	RP – Research Project * - Refer University Notification	CIA 3	10%	based learning along with seminar
2. Tradition				presentation
				Behavioural Attitude +General
		CIA 4	10%	Discipline
				Theory +Practical attendance
		CIA TOTAL	50%	
	Semester Exam (ESE)	50%		
	_	TOTAL	100%	



Programme Name: B.Sc. Nanoscience and Nanotechnology Semester – VIII

(UG Honours with Research)
For the Batch: AY 25-26 onwards

			Teaching Scheme (Hrs./Week)				Examination Scheme					
Sr. No.	Core	Course Code	Course Name	L	Т	P	C	Formative Assessment CIA		Assessment ESE		Total Marks
								Course	Lab	Course	Lab	
MAJOR (MANDATO	ORY + ELECTI	VES)									
1	Major	NYNT801	Nanoelectronics and Spintronics	4	-	-	4	50	-	100		100
2	Major	NYNT802	Smart Materials and Devices	4	-	-	4	50		100	-	100
3	Major	NYNT813	Nanoscience and Nanotechnology Laboratory IV	-	-	4	2	-	50	-	50	100
Major El	ective – IV											
4	Major	NYNTE	Major Elective – IV	4	-	-	4	50	-	100	-	100
Research	Research Project											
5	RP	NYNT814	Research Project – II	-	-	16	8	-	50		50	100
			TOTAL	12	-	20	22	150	100	300	100	500

Course Code	Major Elective IV
NYNTE10	Quantum Field Theory for Nanoscience
NYNTE11	Plasmonics and Nano-Optics
NYNTE12	Industrial Nanotechnology and IPR

Exit option: Award of UG Honours with Research by earning 176 credits.

CIA: Continuous Internal Assessment ESE: End Semester Theory Exam.	OJT – On Job Training FP – Field Project	CIA	Weightage	Description		
, and the second	CEP – Community	CIA 1	10%	Home Assignment		
L: Theory Lecture,	Engagement Project	CIA 2	20%	Mid-Term Exam (MTE)		
T: Tutorial,	CC - Curricular Course	CIA 3	10%	Activity/Project and research based learning		
P: Practical	RP – Research Project * - Refer University	CIII 0	1070	along with seminar presentation		
	Notification	CIA 4	10%	Behavioural Attitude +General Discipline		
	Notification	CIII 4	1070	Theory +Practical attendance		
		CIA TOTAL	50%			