ST. MARY'S COLLEGE (Autonomous)

(Re-accredited with 'A^{+}' Grade by NAAC)

Thoothukudi-628001, Tamil Nadu

(Affiliated to Manonmaniam Sundaranar University)

B.Sc. Physics

School of Physical Sciences

Outcome Based Curriculum

(W.e.f.2021)

PREAMBLE

The Department of Physics provides instructional programs in introductory Physics to a broad range of students through an understandable and effective method that enables them to integrate this knowledge into their normal thought processes. The department provides a forward-looking curriculum to undergraduate students of both major and allied departments with the basic concepts of Physics in a broader level and also provides the latest experimental techniques, computational Physics and the use of computers in data acquisition and analysis, as well as active involvement in professional research.

VISION

To build a foundation for excellence by igniting and promoting enthusiasm, interest and passion in learning physics and thus create globally competent Physicists.

MISSION

The Physics department is committed to impart quality education to awaken the young minds both in theoretical as well as experimental Physics with special emphasis on ‘learning by doing’ for socio-economic growth.

PROGRAMME OUTCOMES

PO.No	After completion of the Undergraduate programme the students of St. Mary's College will be able to
PO 1	develop language, numerical, experimental, analytical and computing skills.
PO 2	pursue higher education programmes.
PO 3	excel in the recent trends of the world, enhancing the level of knowledge to emerge as aholistic person.
PO 4	function effectively as an individual in multidisciplinary settings and develop their ethical, social and cultural values to serve the nation.
PO 5	be proficient in the fields of Arts, Science and Management Studies to qualify for thejob.
PO 6	develop their communicative skills using a range of technologies which enable them to express their ideas and views effectively.
PO 7	become an environmentally conscious citizen.
PO 8	be an empowered and economically independent woman with efficient leadership qualities in an egalitarian society through liberative education.

PROGRAMME SPECIFIC OUTCOMES

PSO No.	Upon completion of B.Sc. Physics Degree programme, the graduates will be able to	PO Mapped
PSO – 1	acquire knowledge of mechanics, wave oscillations, acoustics, properties of matter, optics, thermal physics, electricity and electromagnetism to analyze a variety of physical phenomena.	PO – 1
PSO – 2	obtain knowledge in electronics and communication, digital electronics, solid state physics, optoelectronics, modern physics, bio physics, atomic physics, nuclear energy, relativity and quantum mechanics and fibre optics communication to become competent to pursue higher education	PO – 2
PSO – 3	utilize their knowledge about renewable energy sources to solve the present day energy crisis	PO – 3
PSO –4	gain knowledge about computational Physics, laser, superconductivity, thin films, polymer materials, sensors, biophysics, nanophysics, electrical appliances, maintenance of electronic equipment and photography, wiring and domestic appliances.	PO – 5
PSO –5	adapt easily into the workplace to become communicatively competent by learning professional English for Physics	PO – 6
PSO –6	design, set up and carryout experiments, infer data, account for errors and compare with theoretical predictions	PO – 1
PSO –7	recognize the impact of environmental issues and manage the natural disasters and use the natural resources for more sustainable way of living	PO – 7
PSO –8	develop physical and psychological health of women and gain awareness on legal rights and become an empowered women through various domains	PO – 8

Department of Physics
Course Structure (w.e.f. 2021)

Semester –I

Part	Components	Course Code	Course Title	Hrs/ Week	Credits	Max. Marks		
						CIA	ESE	Total
I	Tamil / French	21ULTA11 21ULFA11	பொதுத்தமிழ் தாள் - 1 இக்கால இலக்கியம் (செய்யுள், இலக்கணம், இலக்கிய வரலாறு, உரைநடை, சிறுகதை) Introductory French Course	6	3	40	60	100
II	General English	21UGEN11	Poetry, Prose, Extensive Reading and Communicative English-I	6	3	40	60	100
III	Core I	21UPHC11	Mechanics and Properties of Matter	6	5	40	60	100
	Core practical I	21UPHCR1	Practical I	2				
	Allied I	21UCHA11	Allied Chemistry	4	3	40	60	100
	Allied Practical I	21UCHAR1		2				
IV	Skill Enhancement Course – I	21UPHPE1	Professional English for Physics – I	2	2	20	30	50
	Ability Enhancement Course – I	21UAVE11	Value Education	2	2	20	30	50
Total				**30**	**18**			

Semester II

Part	Components	Course Code	Course Title	Hrs/ Week	Credits	Max. Marks		
						CIA	ESE	Total
I	Tamil /	21ULTA21	பொதுத்தமிழ் தாள் 2 சமய இலக்கியங்களும் நீதி இலக்கியங்களும் (செய்யுள், இலக்கணம், இலக்கிய வரலாறு, உரைநடை, வாழ்க்கை வரலாறு)	6	3	40	60	100
	French	21ULFA21	Intermediate French Course					
II	General English	21UGEN21	Poetry, Prose, Extensive Reading and Communicative English –II	6	3	40	60	100
III	Core II	21UPHC21	Thermal Physics and Optics	6	5	40	60	100
	Core Practical I	21UPHCR1	Practical I	2	2			
	Allied I	21UCHA22	Allied Chemistry	4	3	40	60	100
	Allied Practical I	21UCHAR1		2	2			
IV	Skill Enhancement Course – II	21UPHPE2	Professional English for Physics – II	2	2	20	30	50
	Ability Enhancement Course	21UAEV21	Environmental Studies	2	2			
			Total	**30**	**22**			

Semester III

Part	Components	Course Code	Course Title	Hrs/ Week	Credit	Max. Marks		
						CIA	ESE	Total
I	Tamil / French	21ULTA31 21ULFA31	பொதுத்தமிழ் தாள் 3 : காப்பியங்களும் சிற்றிலக்கியங்களும் (செய்யுள், இலக்கணம், இலக்கிய வரலாறு, உரைநடை, புதினம்) Advanced French Language	6	4	40	60	100
II	General English	21UGEN31	Poetry, Prose, Extensive Reading and Communicative English- III	6	4	40	60	100
III	Core III	21UPHC31	Electricity and Electromagnetism	4	4	40	60	100
	Core Practical II	21UPHCR2	Practical II	2				
	Allied II	21UMAA31	Allied Mathematics	6	5	40	60	100
	Skill Based Elective	21UPHS31	Instrumentation Physics	2	2			
	NME I	21UPHN31	Applied Physics I	2	2	20	30	50
IV	Ability Enhancement Course	21UAWS31	Women's Synergy	2	2			
	Self Study Course / MOOC/ Internship (Compulsory)	21UPHSS1/ 21UPHO31/ 21UPHI31	Maintenance of Electronic Equipment and Photography		2		50	50
Total				**30**	**25**			

Semester IV

Part	Components	Course Code	Course Title	Hrs/ Week	Credits	Max.Marks		
						CIA	ESE	Total
I	Tamil / French	21ULTA41 21ULFA41	பொதுத்தமிழ் தாள் 4: சங்க இலக்கியம்: (செய்யுள், இலக்கணம்,இலக்கிய வரலாறு, உரைநடை, நாடகம்) French Course and Literature	6	4	40	60	100
II	General English	21UGEN31	Poetry, Prose, Extensive Reading and Communicative English- IV	6	4	40	60	100
III	Core IV	21UPHC41	Electronics and Communication	4	4	40	60	100
	Core Practical II	21UPHCR2	Practical IV	2	2			
	Allied II	21UMAA41	Allied Mathematics	6	5	40	60	100
	Skill Based Elective	21UPHS41	Physics for Competitive Examinations	2	2	40	60	100
	NME II	21UPHN41	Applied Physics II	2	2	20	30	50
IV	Ability Enhancement Course	21UAYM1	Yoga & Meditation	2	2			
	Self study / Online Course / Internship (Optional)	21UPHSS2/ 21UPHO41/ 21UPHI41	Electrical Wiring and Appliances		+2		50	50
V	NCC, NSS & Sports				1			
	Extension Activities CDP				+1			
Total				**30**	**26+3**			

Semester V

Part	Components	Course Code	Course Title	Hrs/ Week	Credits	Max. Marks		
						CIA	ESE	Total
III	Core V (Common Core)	21UPCC51	Material Science	6	5	40	60	100
	Core VI	21UPHC51	Digital Electronics	5	5	40	60	100
	Core VII	21UPHC52	Computational Physics	5	5	40	60	100
	Core Elective	21UPHE51/ 21UPHE52	Renewable Energy Sources/ Mathematical Physics	4	4	40	60	100
	Core Practicals III, IV & V	21UPHCR3	Practical – V (Non electronics)	3				
		21UPHCR4	Practical - VI (Electronics)	3				
		21UPHCR5	Practical – VII (Programming in C++)	2				
IV	Common Skill Based	21UCSB51	Computers for Digital Era and Soft Skills	2	2	20	30	50
	Self study / MOOC / Internship (Optional)	21UPHSS3/ 21UPHO51/ 21UPHI51	Biophysics	--	+2		50	50
Total				**30**	**21+2**			

Semester VI

Part	Components	Course Code	Course Title	Hrs/ Week	Credits	Max. Marks		
						CIA	ESE	Total
III	Core VIII	21UPHC61	Relativity and Quantum Mechanics	5	5	40	60	100
	Core IX	21UPHC62	Atomic and Nuclear Physics	4	4	40	60	100
	Core X	21UPHC63	Opto Electronics And Fibre Optics Communication	4	4	40	60	100
	Core XI	21UPHC64	Advanced Physics	4	4	40	60	100
	Core Practicals III, IV & V	21UPHCR3	Practical – V (Non electronics)	3	2			
		21UPHCR4	Practical - VI (Electronics)	3	2			
		21UPHCR5	Practical – VII (Programming in C++	2	2			
IV	Core XII / Project	21UPHC65	Microprocessor 8086 and Microcontroller	5	5	40	60	100
			Total	**30**	**28**			

Semester	Hours	Credits	Extra Credits
I	30	18	---
II	30	22	---
III	30	25	---
IV	30	26	3
V	30	21	2
VI	30	28	--
Total	**180**	**140**	**5**

Courses	**Number of Courses**	**Hours / week**	**Credits**	**Extra Credits**
Tamil	4	24	14	--
English	4	24	14	--
Core	11 T + 5 P	53 + 24	60	
Core Skill Based	2	4	4	--
Core Elective	1	4	4	--
Group Project	1	5	3	--
Allied	4 T + 1P	20 + 4	20	
NME	2	4	4	--
Skill Enhancement Course	2	4	4	--
Ability Enhancement Course	4	8	8	--
Common Skill Based	1	2	2	--
NCC, NSS & Sports		--	1	
Extension Activities		--		1
Self Study Papers (Optional)	2	--		4
Self Study Papers (Compulsory)	1	--	2	--
Total		**180**	**140**	**5**

SEMESTER - 1			
Part – 1 பொதுத்தமிழ் தாள் - 1 இக்கால இலக்கியம் (செய்யுள், இலக்கணம், இலக்கிய வரலாறு, உரைநடை, சிறுகதை)			
Course Code: 21ULTA11	**Hrs/Week:6**	**Hrs/Semester: 90**	**Credits: 3**

Objectives:

- மாணவியருக்கு நல்ல மதிப்பீடுகளைக் கற்பித்து வாழ்வில் அவற்றைப் பின்பற்ற வழிவகுத்தல்.
- இலக்கிய மாந்தரின் வாழ்க்கை அனுபவங்கள் மூலம் வாழ்வில் பிரச்சனைகளைஎதிர்கொள்ளும் திறம், தன்னம்பிக்கை, ஆளுமைத்திறம், மொழிஅறிவு இவற்றை உருவாக்குதல்.

Course Outcome:

CO.NO	**இப்பாடத்திட்டம் மாணவியருக்கு**	**அறிவுசார் மதிப்பீடு**
CO-1	பெண் சார்ந்த விடுதலை, பொதுமைச் சிந்தனை உணர்வையும் வளர்க்கிறது	வளர்ச்சி
CO-2	இயற்கையைப் பேணுதற்கும் வாழ்வின் வளர்ச்சி நிலையை மேம்படுத்திக் கொள்ளுதற்கும் உதவுகிறது.	நடைமுறைப்படுத்துதல்
CO-3	சமய நல்லிணக்கம், ஒற்றுமை உணர்வு, இறை நம்பிக்கை இவற்றை உருவாக்குகிறது.	உருவாக்கம்
CO-4	மொழியைப் பிழையின்றி பேசவும் எழுதவும் உதவுகிறது.	புரிதல் திறன் மேம்பாடு
CO-5	தனிமனித வாழ்க்கைச் சிக்கல்கள், சமுதாயப் பிரச்சனைகள் எதிர்கொள்ளும் திறனை எடுத்துரைக்கிறது.	நடைமுறைப்படுத்துதல்
CO-6	போட்டித் தேர்வுகளுக்குப் பயன்படும் வகையில் படைப்பாக்கத் திறனை வளர்க்க உதவுகிறது.	படைப்பாற்றல் திறன் மேம்பாடு

21ULTA11 – Tamil I

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	3	3	2	2	3	2.63	3	2	3	3	3	3	3	3	2.75
CO-2	3	3	3	3	3	2	2	3	2.75	3	3	3	3	3	3	3	3	3
CO-3	2	3	2	3	3	3	3	3	2.75	3	3	3	3	3	3	3	3	3
CO-4	3	2	3	3	3	3	2	3	2.75	3	3	2	2	2	3	2	3	2.36
CO-5	3	3	3	3	2	3	3	3	2.88	2	3	3	3	3	3	3	2	2.88
CO-6	3	2	2	3	3	2	2	3	2.50	2	3	3	3	3	3	3	2	2.88
Avg	**2.8**	**2.5**	**2.6**	**3**	**2.8**	**2.5**	**2.3**	**3**		**2.6**	**2.8**	**2.8**	**2.8**	**2.8**	**3**	**2.8**	**2.6**	
PO Mean									**2.71**	PSO Mean								**2.81**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

I B.A., / B.Sc Part I FRENCH

SEMESTER – I			
Course Title : PART – I French Paper – I Introductory French Course			
Course Code :21ULFA11	**Hrs/week : 6**	**Hrs/ Sem : 90**	**Credits : 3**

Objectives

To initiate a beginner to the francophonic world and to train them to make their maiden efforts in spoken and written French.

To create a number of real-life situations to make the learner express herself in the target language through experiential teaching method.

Course Outcomes

CO	At the end of this course, the students will be able to	CL
1.	make the initial conversation in French	Un, Re
2.	understand the basic sentence structures and make sentences of their own	Un, Ap
3.	analyse and evaluate intercultural factors	An
4.	understand grammar and apply the acquired grammatical knowledge in solving grammar exercises	Un, Ap
5.	differentiate the French culture	An
6.	understand the French and francophonic lifestyle	Un, Re

21ULFA11-Introductory French Course

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	3	3	3
CO-2	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	3	3	3
CO-3	3	3	2	3	3	3	3	3	2.88	3	3	3	3	3	3	3	3	3
CO-4	3	3	3	3	3	3	2	3	2.88	3	3	2	2	2	3	3	3	2.63
CO-5	3	3	3	3	3	3	3	3	3.00	2	3	3	3	3	3	3	3	2.88
CO-6	3	3	3	3	3	3	2	3	2.88	2	3	3	3	3	3	3	3	2.88
Avg	**3**	**3**	**2.8**	**3**	**3**	**3**	**2.3**	**3**		**2.6**	**3**	**2.8**	**2.8**	**2.8**	**3**	**3**	**3**	
PO Mean									**2.9**	PSO Mean								**2.89**
Strength of PO Correlation				Strong						Strength of PSO Correlation					Strong			

SEMESTER-I			
Part II General English	**Poetry, Prose, Extensive Reading and Communicative English-I**		
Course Code 21UGEN11	**Hrs/Week: 6**	**Hrs/Semester:90**	**Credits:3**

Objectives:

- To provide adequate exposure and opportunities for students to imbibe, develop, practise and use LSRW skills
- To help students read and comprehend contents in English

Course Outcome:

CO. No.	**Upon completion of this course, students will be able to**	PSO Addressed	**Cognitive Level**
CO- 1	understand and extend their listening and writing skills.	1	Un
CO- 2	apply and incorporate basic grammar and mechanics in writing.	3	Ap
CO- 3	understand literary texts in its socio-cutural contexts	2, 4	Un, Ap
CO- 4	communicate in English with confidence for employability.	3	Ap
CO- 5	appreciate and imbibe ethical and moral values through the study of the literary pieces.	5	Ap, Ev
CO- 6	construct simple sentences and short paragraphs in response to reading and writing.	8	Cr

21UGEN11-Poetry, Prose, Extensive Reading and Communicative English-I

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	2	3	2	3	2	2.50	2	3	2	3	2	3	2	3	2.50
CO-2	2	3	2	3	2	3	2	3	2.50	3	2	3	2	3	2	3	2	2.50
CO-3	3	2	3	2	3	2	3	2	2.50	2	3	2	3	2	3	2	3	2.50
CO-4	2	3	2	3	2	3	2	3	2.50	3	2	3	2	3	2	3	2	2.50
CO-5	3	2	3	2	3	2	3	2	2.50	2	3	2	3	2	3	2	3	2.50
CO-6	2	3	2	3	2	3	2	3	2.50	3	2	3	2	3	2	3	2	2.50
Avg	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**		**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.0**	**2.5**	
PO Mean									**2.5**	PSO Mean								**2.5**
Strength of PO Correlation				Strong						Strength of PSO Correlation					Strong			

SEMESTER- I			
Core I	**Mechanics and Properties of Matter**		
Course Code : 21UPHC11	**Hours/Week: 6**	**Hrs/ Semester: 90**	**Credits : 5**

Objectives:

1. To learn about mechanics and properties of matter
2. To know their relevance in day to day applications.
3. To learn about conservation laws, collisions and gravitational force, elasticity, surface tension and viscous nature of matter.

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	discuss the principle of conservation of energy and linear momentum (K2)	1	Un
CO-2	calculate the change in momentum of an object for the net force acting on the object (K3)	1	Ap
CO-3	analyse the motion of the projectile (K4)	1	An
CO-4	outline the fundamental concepts of stress and strain (K4)	1	An
CO-5	prove the relation connecting the three modulo of elasticity (K5)	1	Ev
CO-6	recall viscosity, coefficient of viscosity and surface tension (K1)	1	Re

21UPHC11-Mechanics and Properties of Matter

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	2	3	3	3	2	2	2.50	3	3	3	3	2	3	2	2	2.63
CO-2	3	2	2	3	2	3	3	2	2.50	3	2	2	2	3	2	2	2	2.25
CO-3	3	2	2	2	2	3	2	2	2.25	3	3	3	3	2	3	2	2	2.63
CO-4	3	3	3	3	3	2	3	2	2.75	3	2	3	2	3	2	3	2	2.50
CO-5	3	2	2	3	2	3	2	2	2.38	3	3	2	2	2	3	2	2	2.38
CO-6	3	3	3	2	3	2	3	2	2.63	3	2	3	3	3	2	3	2	2.63
Avg	**3.0**	**2.3**	**2.3**	**2.7**	**2.5**	**2.7**	**2.5**	**2.0**		**3.0**	**2.5**	**2.7**	**2.5**	**2.5**	**2.5**	**2.2**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.5**
Strength of PO Correlation				Strong						Strength of PSO Correlation					Strong			

SEMESTER I			
Part III Allied – I	**Allied Biochemistry -I**		
Course Code: 21UCBA11	**Hrs/Week : 4**	**Hrs/ Sem : 60**	**Credits : 3**

OBJECTIVES:

- To acquire knowledge about the chemical composition of life.
- To Understand fundamental biochemical processes.
- To knowledge about vitamins and their deficiency.
- To study the functions of hormones.

Course Outcomes

CO No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO 1	express chemical composition and the elements of life.	1,2	Un
CO 2	evaluate the importance of bioenergetics.	1	Ev
CO 3	demonstrate about the various energy rich compounds such as adenosine triphosphate, guanosine triphosphate, uridine triphosphate, cytidine triphosphate and acyl phosphate.	6	Ap
CO 4	distinguish water soluble and fat-soluble vitamins and analyze their composition, functions and deficiency symptoms.	2	An
CO 5	generate the knowledge on hormones producing organs and their functions and to know about the plant as well as animal hormones.	5	Cr ,Re
CO 6	evaluate the antibiotics role in affecting cell wall synthesis, cytoplasmic membrane and enzyme systems.	2,7	Ev

21UCHA11-Allied Chemistry

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	2	2	2	3	3	3	2.63	3	3	2	2	3	3	3	3	2.75
CO-2	2	3	2	3	2	3	2	3	2.50	3	2	3	2	2	2	3	3	2.50
CO-3	3	3	2	2	2	3	2	3	2.50	3	2	3	3	3	3	2	3	2.75
CO-4	3	3	2	3	2	2	3	3	2.63	3	3	3	2	3	2	2	3	2.63
CO-5	3	2	2	3	3	2	3	3	2.63	3	3	3	2	3	2	3	3	2.75
CO-6	3	3	2	3	3	3	2	3	2.75	3	3	3	3	3	2	3	3	2.88
Avg	**2.8**	**2.8**	**2.0**	**2.7**	**2.3**	**2.7**	**2.5**	**3.0**		**3.0**	**2.7**	**2.8**	**2.3**	**2.8**	**2.3**	**2.6**	**3.0**	
PO Mean									**2.6**	PSO Mean								2.71
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER - II			
Part -1 பொதுத்தமிழ் - தாள் 2 சமய இலக்கியங்களும் நீதி இலக்கியங்களும் (செய்யுள், இலக்கணம், இலக்கிய வரலாறு,உரைநடை, வாழ்க்கை வரலாறு)			
Course Code: 21ULTA21	**Hrs/Week:6**	**Hrs/ Semester : 90**	**Credits :3**

Objectives:

- வாழ்வியல் நன்னெறிகளான மனிதநேயம், சமத்துவம் போன்றவற்றை வளர்த்துக் கொள்ளக் கற்றுக் கொடுத்தல்
- அறநெறியைக் கடைப்பிடிப்பதே நிலையானதும் நீடித்ததுமான நன்மையைத் தருவது என்பதைச் சான்றோரின் வாழ்க்கை நெறிகள் மூலம் உணரச்செய்தல், மொழி அறிவு, இலக்கிய அறிவு இவற்றை வளர்த்துக் கொள்ளக் கற்றுக் கொடுத்தல்

Course Outcome

Co.No.	**இப்பாடத்திட்டம் மாணவியருக்கு**	**அறிவுசார் மதிப்பீடு**
CO-1	இறை ஆற்றலை உணர்ந்துகொள்ள உதவுகிறது	மதிப்பீடு
CO-2	நல்ல நண்பர்களையும் நல்ல மனிதர்களையம் இனம் கண்டுகொள்ளவும், அன்பு, இரக்கம், நற்சொல், நற்செயல் போன்ற நற்பண்புகளோடு வாழவும் வழி வகுக்கிறது.	நடைமுறைப்படுத்துதல்
CO-3	மனித நேய பண்புகளோடு வாழ்ந்த சான்றோரின் அனுபவங்களைப் பெற்றுக்கொள்ள உதவுகிறது	நடைமுறைப்படுத்துதல்
CO-4	தனிமனித வாழ்க்கைச் சிக்கல்களையும் பிரச்சனைகளையும் எதிர்கொள்ளும் ஆற்றலை உருவாக்குகிறது.	நடைமுறைப்படுத்துதல், திறன் மேம்பாடு
CO-5	இறைவன் முன் அனைவரும் சமம் என்ற சிந்தனையை உருவாக்குகிறது.	மதிப்பீடு
CO-6	போட்டித்தேர்வுகளுக்குப் பயன்படும் வகையில் படைப்பாக்கத் திறனை வளர்க்க உதவுகிறது.	படைப்பாற்றல்

21ULTA21-Tamil II

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	3	3	2	2	3	2.63	3	2	3	3	3	3	3	2	2.75
CO-2	3	3	3	3	3	2	2	3	2.75	3	3	2	3	3	3	3	3	2.88
CO-3	2	3	2	3	3	3	3	3	2.75	3	3	3	3	3	2	3	3	2.88
CO-4	3	3	3	3	3	3	3	3	3.00	3	3	2	2	2	3	2	2	2.38
CO-5	3	3	3	3	2	3	3	2	2.75	2	3	3	3	3	2	3	3	2.75
CO-6	3	2	2	3	3	2	2	3	2.50	2	3	3	3	3	3	3	3	2.88
Avg	**2.8**	**2.7**	**2.7**	**3.0**	**2.8**	**2.5**	**2.5**	**2.8**		**2.7**	**2.8**	**2.7**	**2.8**	**2.8**	**2.7**	**2.8**	**2.7**	
PO Mean									**2.73**	PSO Mean								**2.75**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER – II			
Course Title : PART – I French Paper – II Intermediate French Course			
Course Code :21ULFA21	**Hrs/week : 6**	**Hrs/ Sem : 90**	**Credits : 3**

Objectives

To develop and improve upon the acquisition of four competencies of language learning.

To motivate the learner through role plays as to create real life situations. To prepare her for the real communication challenges.

Course Outcomes

CO	At the end of this course, the students will be able to	CL
1.	listen, understand and make basic conversation in French	Un, Ap
2.	demonstrate proficiency in vocabulary	Re, Ap
3.	be involved in simulation and role-play	Re, Ap
4.	analyse her culture and compare it with French Culture	Re, Un
5.	create passages on her own	Ap, Cr
6.	get a gist of the French literature	Un

21ULFA21-Intermediate French Course

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	3	3	3	3	3	3.00	3	3	3	3	3	3	3	3	3.00
CO-2	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	3	3	3.00
CO-3	3	3	3	3	3	3	2	3	2.88	3	3	3	2	3	3	3	3	2.88
CO-4	2	3	3	3	3	3	3	3	2.88	3	3	3	3	3	3	3	3	3.00
CO-5	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	3	3	3.00
CO-6	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	2	3	2.88
Avg	**2.8**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**2.3**	**3.0**		**3.0**	**3.0**	**3.0**	**2.8**	**3.0**	**3.0**	**3.0**	**3.0**	
PO Mean									**2.9**	PSO Mean								**2.96**
Strength of PO Correlation					Strong					Strength of PSO Correlation					Strong			

SEMESTER-II			
Part II General English	**Poetry, Prose, Extensive Reading and Communicative English –II**		
Course Code 21UGEN21	**Hrs/Week: 6**	**Hrs/Semester:90**	**Credits:3**

Objectives

- To help students realise how life, literature and language are closely connected
- To expose students to language skills through the core subjects

Course Outcome:

CO.No.	**Upon completion of this course, students will be able to**	PSO Addressed	**Cognitive Level**
CO-1	enhance their vocabulary through the texts.	1	Un
CO- 2	demonstrate effective communication skills.	3	Un, Ap
CO- 3	comprehend passages and interpret on their own.	1,2	Un, Ap
CO- 4	construct paragraphs and essays, make notes and sum up passages.	8	An
CO- 5	analyse literary pieces and inculcate ethical values.	5	An
CO- 6	evaluate how language and literature are closely related to life.	5,6	Cr

21UGEN21-Poetry, Prose, Extensive Reading and Communicative English –II

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	2	3	3	2	2	2.50	3	2	3	3	2	2	3	2	2.50
CO-2	2	3	2	3	2	2	3	3	2.50	2	3	2	2	3	3	2	3	2.50
CO-3	3	2	2	3	3	2	2	3	2.50	3	2	3	2	3	2	3	2	2.50
CO-4	3	3	3	2	2	3	2	3	2.63	2	3	3	2	3	3	2	2	2.50
CO-5	2	3	2	3	3	2	3	2	2.50	3	3	2	3	3	2	2	3	2.63
CO-6	3	2	3	3	2	3	3	2	2.63	2	3	3	2	2	3	3	2	2.50
Avg	**2.7**	**2.5**	**2.5**	**2.7**	**2.5**	**2.5**	**2.5**	**2.5**		**2.5**	**2.7**	**2.7**	**2.3**	**2.7**	**2.5**	**2.4**	**2.3**	
PO Mean									**2.54**	PSO Mean								**2.52**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER- II			
CORE II	**Thermal Physics and Optics**		
Course Code: 21UPHC11	**Hours/Week: 6**	**Hrs/ Semester: 90**	**Credits : 5**

Objective:

1. To gain knowledge about the laws of thermodynamics
2. To understand the concept of transport phenomena and thermal conductivity
3. To provide a solid understanding of low temperature physics and optical phenomena
4. To know the spectacular nature of light by studying interference, diffraction and polarisation

COURSE OUTCOMES:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	recall the laws of thermodynamics to understand the concepts of transport phenomenon (K1)	1	Un
CO-2	discuss the transfer of energy through conduction, convection and radiation (K2)	1	Re
CO-3	demonstrate and determine the thermal conductivity of a bad conductor (K3)	1	Ap
CO-4	categorize the different types of aberrations in lenses (K4)	1	An
CO-5	evaluate the thickness of a thin wire by forming interference fringes (K5)	1	Ev
CO-6	summarise the knowledge on polarisation of light and its changes upon reflection and transmission (K2)	1	Un

21UPHC21-Thermal Physics and Optics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	2	3	3	2	2	2	2.38	3	2	2	3	2	3	2	2	2.38
CO-2	3	3	3	2	2	3	2	2	2.50	3	2	3	2	2	3	2	2	2.38
CO-3	3	2	3	2	3	3	2	2	2.50	3	3	3	3	3	3	2	2	2.75
CO-4	3	3	2	3	3	2	2	2	2.50	3	2	2	3	3	3	2	2	2.50
CO-5	3	3	3	3	2	3	2	2	2.63	3	3	3	3	2	3	2	2	2.63
CO-6	3	2	2	3	3	3	2	2	2.50	3	2	2	3	2	3	2	2	2.38
Avg	**3.0**	**2.5**	**2.5**	**2.7**	**2.7**	**2.7**	**2.0**	**2.0**		**3.0**	**2.3**	**2.5**	**2.8**	**2.3**	**3.0**	**2.0**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.5**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER II			
Part III Allied - I	**Allied Biochemistry –II**		
Course Code: 21UCBA21	**Hrs/Week : 4**	**Hrs/ Sem : 60**	**Credits : 3**

OBJECTIVES:

- To achieve broad based knowledge in concepts and principles of biochemistry.
- To provide an opportunity in acquiring knowledge about nutritional biochemistry.
- To understand the various pathways involved in cell respiration.
- To grasp in-depth knowledge about the biochemistry of blood and respiration.
- To familiarize the learners with the techniques involved in biochemistry.

Course Outcomes

CO No.	**Upon completion of this course, students will be able to**	**PSOs addressed**	**CL**
CO 1	discuss in detail about the nutritional values of milk, egg, meat, fish, vegetable foods, fruits, tea, coffee, cocoa and alcohol.	1	Un
CO 2	demonstrate the theories of biological oxidation decarboxylation, electron transport system and oxidative phosphorylation.	5	Ap
CO 3	describe the functions of blood and to discuss in brief about red blood cells, white blood cells, blood platelets, plasma and plasma protein.	6	Re
CO 4	evaluate how the minerals are important in our life interpret the various minerals and their recommended levels in food.	1	Ev
CO 5	analyse the relation between optical and electron microscope.	2	An
CO 6	develop the knowledge on instrumentation technique and to generate the real applications.	2	Cr

21UCHA22-Allied Chemistry

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	3	2	3	2	3	2.75	3	3	3	3	3	3	3	3	3.00
CO-2	3	3	2	3	2	2	2	3	2.50	3	3	3	3	3	2	3	3	2.88
CO-3	3	3	3	2	2	3	2	3	2.63	3	3	3	3	3	3	3	3	3.00
CO-4	2	3	3	3	2	2	2	3	2.50	3	3	3	3	3	3	3	3	3.00
CO-5	3	3	2	3	2	3	2	3	2.63	3	3	3	3	3	3	3	3	3.00
CO-6	3	3	3	2	2	3	2	3	2.63	3	3	3	3	3	3	3	3	3.00
Avg	**2.8**	**3.0**	**2.7**	**2.7**	**2.0**	**2.7**	**2.0**	**3.0**		**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**2.8**	**3.0**	**3.0**	
PO Mean									**2.6**	PSO Mean								**2.98**
Strength of PO Correlation				Strong						Strength of PSO Correlation					Strong			

SEMESTER – III			
Part-I பொதுத்தமிழ் - தாள் 3 காப்பிய இலக்கியங்களும் சிற்றிலக்கியங்களும் (செய்யுள், இலக்கணம், இலக்கிய வரலாறு, உரைநடை, புதினம்,)			
Course Code: 21ULTA31	**Hrs / Week:6**	**Hrs / Semester: 90**	**Credits: 4**

Objectives:

- மாணவியர் இறை நம்பிக்கையிலும், நற்பண்புகளிலும் வளர்ந்து, இலக்கிய அறிவிலும் மொழித்திறனிலும் சிறந்து விளங்க வழிகாட்டல்.
- காப்பிய மாந்தரின் வாழ்க்கையின் மூலமாக கடவுள் நம்பிக்கை, நல்ல உறவுகள், இயற்கையை நேசித்தல், மொழிஅறிவு போன்றவற்றை வளரச் செய்தல்.

Course Outcome:

CO.No.	இப்பாடத்திட்டம் மாணவியருக்கு	அறிவுசார் மதிப்பீடு
CO-1	பெண்களின் சட்டங்கள் உரிமைகள், வேலைவாய்ப்பு பற்றிய விபரங்களை அறிந்து கொள்ள உதவுகிறது.	நடைமுறைப்படுத்தல்
CO-2	அரசியல் சூழ்ச்சி, இனம், சாதி குறித்த பாகுபாடு இவற்றிலிருந்து விடுதலை பெறும் வழிவகைகளைக் கற்றுக்கொடுக்கிறது.	நடைமுறைப்படுத்தல்
CO-3	இலக்கிய அறிவினை வளர்க்க, காப்பியச் சுவை உணர்ந்து சுவைக்க வாய்ப்பளிக்கிறது.	நடைமுறைப்படுத்தல்
CO-4	தனிமனித வாழ்க்கைச் சிக்கல்களை எதிர்கொள்ளும் நிலையை உருவாக்குகிறது	நடைமுறைப்படுத்தல்
CO-5	இப்பகுதியில் வாழும் அடித்தட்டு மக்களின் வாழ்வு நிலையை அறிந்து கொள்ள உதவுகிறது. பெண்கள் நீதிக்குப் போராடும் உணர்வை வளர்க்கிறது.	நடைமுறைப்படுத்தல், திறன் மேம்பாடு
CO-6	போட்டித் தேர்வுகளுக்குப் பயன்படும் வகையில் படைப்பாக்கத் திறனை வளர்க்க உதவுகிறது.	படைப்பாற்றல்,திறன் மேம்பாடு

21ULTA31-Tamil III

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	3	3	2	2	3	2.63	3	2	3	3	3	3	3	2	2.75
CO-2	3	3	3	3	3	2	2	3	2.75	2	3	2	3	3	3	3	3	2.75
CO-3	2	3	2	3	3	3	3	3	2.75	3	3	3	3	3	2	3	3	2.88
CO-4	3	3	3	3	3	3	3	3	3.00	3	3	2	2	2	3	2	2	2.38
CO-5	2	3	3	3	2	3	3	2	2.63	2	3	3	3	3	2	3	3	2.75
CO-6	3	3	2	3	3	2	2	3	2.63	2	3	3	3	3	3	3	3	2.75
Avg	**2.7**	**2.8**	**2.7**	**3.0**	**2.8**	**2.5**	**2.5**	**2.8**		**2.5**	**2.8**	**2.7**	**2.8**	**2.8**	**2.7**	**2.8**	**2.7**	
PO Mean									**2.73**	PSO Mean								**2.73**
Strength of PO Correlation				Strong						Strength of PSO Correlation					Strong			

SEMESTER – III			
Course Title : PART – I French Paper – III Advanced French Language			
Course Code : 21ULFA31	**Hrs/week : 6**	**Hrs/ Sem : 90**	**Credits : 4**

Objectives

To enhance the acquisition of all the four competencies of language learning.

To create the independent capability of the learner to respond and tackle the various situations of communication when the learner is in the native country of the target language

Course Outcomes

CO	At the end of this course, the students will be able to	CL
1.	analyse and Interpret French realities	An, Ap
2.	understand and analyse the various components of French life	Un, An
3.	evaluate French civilisation , appreciate the differences between eastern and western civilisation	Ev
4.	understand grammar and apply the acquired grammatical knowledge to do the grammar exercises	Un, Ap
5.	create passages on her own civilisation in the target language	Un, Cr
6.	comprehend French literature	Un

21ULFA31-Advanced French Language

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	3	3	3	3	3	3.00	3	3	3	3	3	3	3	3	3.00
CO-2	3	3	3	3	3	3	3	3	3.00	3	3	3	3	3	3	3	3	3.00
CO-3	3	3	2	3	3	3	3	3	2.88	2	3	3	3	3	3	3	3	2.88
CO-4	2	3	3	3	3	3	2	3	2.75	3	3	3	2	3	3	2	3	2.75
CO-5	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	3	3	3.00
CO-6	3	3	3	3	3	3	3	3	3.00	2	3	3	3	3	3	3	3	2.88
Avg	**2.8**	**3.0**	**2.8**	**3.0**	**3.0**	**3.0**	**2.7**	**3.0**		**2.7**	**3.0**	**3.0**	**2.8**	**3.0**	**3.0**	**2.8**	**3.0**	
PO Mean									**2.92**	PSO Mean								**2.92**
Strength of PO Correlation				Strong						Strength of PSO Correlation			Strong					

SEMESTER – III			
Part II English Poetry, Prose, Extensive Reading and Communicative English - III			
Course Code: 21UGEN31	**Hrs/ Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Objectives:

- To acquaint students with literary art and writings of universal appeal.
- To strengthen the proficiency of communicative English through literary based study.

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO Addressed	CL
CO-1	understand the language and literary components of texts	1	Un
CO-2	develop interest and appreciate literary texts	2	Un, Ev
CO-3	comprehend aspects of grammar and its application	6	Un
CO-4	evaluate perspectives and human values for life	4, 5	Ev
CO-5	adopt appropriate technique to enhance communication and writing	3, 7	Ap, Cr
CO-6	enrich vocabulary and develop skills of formal writing and communication	7, 8	Ap, Cr

21UGEN31-Poetry, Prose, Extensive Reading and Communicative English- III

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	2	3	3	3	3	2	2.75	3	2	3	3	3	3	3	2	2.75
CO-2	3	3	2	3	2	3	3	3	2.75	2	3	3	3	3	2	3	2	2.63
CO-3	2	3	3	3	2	3	3	2	2.63	3	3	3	2	3	2	3	3	2.75
CO-4	3	3	2	3	3	3	2	3	2.75	2	3	2	3	3	2	3	2	2.50
CO-5	3	2	3	3	3	3	2	3	2.75	3	3	2	3	3	2	3	3	2.75
CO-6	3	2	3	3	2	3	3	2	2.63	2	3	3	3	2	3	3	2	2.63
Avg	**2.8**	**2.7**	**2.5**	**3.0**	**2.5**	**3.0**	**2.7**	**2.5**		**2.5**	**2.8**	**2.7**	**2.8**	**2.8**	**2.3**	**3.0**	**2.3**	
PO Mean									**2.71**	PSO Mean								**2.67**
Strength of PO Correlation					Strong					Strength of PSO Correlation					Strong			

SEMESTER III			
Core III	**Electricity and Electromagnetism**		
Course Code: 21UPHC31	**Hrs./Week : 4**	**Hrs./Sem : 60**	**Credits : 4**

Objectives:

1. To deal with the basic concept of electricity
2. To discuss the laws of electromagnetic induction
3. To extend the fundamental concepts to AC bridges

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO–1	recall Current, Ohm's law and Kirchoff's law (K1)	1	Re
CO–2	apply Kirchoff's law to Wheatstone's network (K3)	1,6	Ap
CO–3	apply the principle of potentiometer to measure current and resistance (K3)	1,6	Ap
CO–4	compare self inductance and mutual inductance (K4)	1,6	An
CO–5	compare LCR series and parallel resonance circuit (K2)	1,6	Un
CO–6	evaluate the value of capacitance using Desauty's bridge (K5)	1,6	Ev

21UPHC31-Electricity and Electromagnetism

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	2	3	3	2	2	2	2.50	3	3	2	3	3	3	2	2	2.63
CO-2	3	2	3	2	3	3	2	2	2.50	3	2	3	2	2	3	2	2	2.38
CO-3	3	3	2	3	3	3	2	2	2.63	3	2	2	3	3	3	2	2	2.50
CO-4	3	2	3	3	2	3	2	2	2.50	3	3	3	2	2	3	2	2	2.50
CO-5	3	3	2	2	3	2	2	2	2.38	3	2	3	3	3	3	2	2	2.63
CO-6	3	2	3	3	2	3	2	2	2.50	3	3	2	2	2	3	2	2	2.38
Avg	**3.0**	**2.5**	**2.5**	**2.7**	**2.7**	**2.7**	**2.0**	**2.0**		**3.0**	**2.5**	**2.5**	**2.5**	**2.5**	**3.0**	**2.0**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.5**
Strength of PO Correlation					Strong					Strength of PSO Correlation					Strong			

SEMESTER – III			
Part III	**Allied Mathematics – I**		
Code : 21UMAA31	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits: 4**

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	POs addressed	CL
CO-1	the equations from the given roots&approximate solutions of equations by applying Horner's method and Newton's method	1	Un
CO-2	develop and apply concepts of expressions and equations to investigate and describe relationships	5	An
CO-3	evaluate eigen values and eigen vectors of square matrices and make use of the properties of determinants in their calculation.	3	Ev
CO-4	calculate the radius of curvature, centre and circle of curvature.	5	Ev
CO-5	compute the gradient of a scalar valued function ,curl,and divergence of vector fields	3	Cr
CO-6	interpret basic definitions and classify the differential equations with respect to their order and linearity	1	Un

21UMAA31-Allied Mathematics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	3	3	2	2	2	**2.6**	3	3	3	3	3	3	2	2	**2.8**
CO-2	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
CO-3	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
CO-4	3	3	3	2	3	2	2	2	**2.5**	3	3	3	3	3	3	2	2	**2.8**
CO-5	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
CO-6	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
Avg	**3**	**3**	**3**	**2.8**	**3**	**2.7**	**2**	**2**		**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	
PO Mean									**2.7**	PSO Mean								**2.8**
Strength of PO Correlation				Strong						Strength of PSO Correlation					Strong			

SEMESTER – IV			
Part-1 பொதுத்தமிழ் - தாள் 4 சங்க இலக்கியம் (செய்யுள், இலக்கணம், இலக்கிய வரலாறு, உரைநடை, நாடகம்)			
Course Code: 21ULTA41	**Hrs / Week:6**	**Hrs / Semester: 90**	**Credits: 4**

Objectives:

- மாணவியருக்கு நல்ல மதிப்பீடுகளைக் கற்பித்து, வாழ்வில் அவற்றைப் பின்பற்றவழிவகுத்தல்.
- இலக்கியமாந்தரின் மூலம் நல்லவாழ்க்கை அனுபவங்களைப் பெறச் செய்து தன்னம்பிக்கை, ஆளுமைத் திறம், மொழி அறிவு இவற்றை உருவாக்குதல்.

Course Outcome:

CO.No.	இப்பாடத்திட்டம் மாணவியருக்கு	அறிவுசார் மதிப்பீடு
CO-1	அனுபவ அறிவை வளர்க்கிறது.	நடைமுறைப்படுத்தல்
CO-2	பழந்தமிழர் வாழ்வியல் முறைகளை கற்று பயனடைய உதவுகிறது.	நடைமுறைப்படுத்தல்
CO-3	மனிதநேயம், இறைநம்பிக்கை இவற்றை உருவாக்குகிறது.	உருவாக்கம்
CO-4	தனிமனித வாழ்க்கைச் சிக்கல்களை எதிர்கொள்ளும் நிலையை உருவாக்குகிறது	நடைமுறைப்படுத்தல், உருவாக்கம்
CO-5	சமுதாய பிரச்சினைகளை எதிர்கொள்ளும் திறம் கிடைக்கிறது.	நடைமுறைப்படுத்தல், திறன் மேம்பாடு
CO-6	போட்டித் தேர்வுகளுக்குப் பயன்படும் வகையில் படைப்பாக்கத் திறனை வளர்க்க உதவுகிறது.	படைப்பாற்றல், திறன் மேம்பாடு

21ULTA41-Tamil IV

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	3	3	2	2	3	2.63	3	2	3	3	3	2	3	2	2.63
CO-2	3	3	3	2	3	2	3	3	2.75	3	3	3	2	3	3	3	3	2.88
CO-3	2	3	2	3	3	3	3	2	2.63	3	3	3	3	3	3	3	3	3.00
CO-4	2	2	3	3	3	3	3	3	2.75	3	3	2	2	2	3	2	2	2.38
CO-5	3	3	3	2	2	3	3	3	2.75	2	3	3	3	3	2	3	3	2.75
CO-6	3	2	2	3	3	2	3	3	2.63	2	3	3	2	3	3	3	3	2.75
Avg	**2.7**	**2.5**	**2.7**	**2.7**	**2.8**	**2.5**	**2.8**	**2.8**		**2.7**	**2.8**	**2.8**	**2.5**	**2.8**	**2.7**	**2.8**	**2.7**	
PO Mean									**2.69**	PSO Mean								**2.73**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER – IV			
Course Title : PART – I French Paper – IV French Course and Literature			
Course Code : 21ULFA41	**Hrs/week : 6**	**Hrs/ Sem : 90**	**Credits : 4**

Objectives

To create and develop the taste for literary readings in the target language.

To motivate students to appreciate the French literature.

Course Outcomes

CO	At the end of this course, the students will be able to	CL
1.	reflect upon the author's ideas and transform their own personality	Un
2.	explore a literary text, with the perspective of analyzing the content and manner of writing	Un, An
3.	create critical appreciations	Ev
4.	evaluate the literary piece in comparison with any other of another language	An, Ap
5.	identify grammar rules in literary text and apply the grammatical knowledge to do grammar exercises	Re, Un, Ap
6.	discover, interrogate and reflect on the humanistic value	An

21ULFA41-French Course and Literature

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	3	3	3	2	3	2.75	2	2	3	3	3	3	3	3	2.75
CO-2	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	3	3	3.00
CO-3	3	3	3	3	3	3	3	3	3.00	3	3	3	3	3	3	3	3	3.00
CO-4	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	3	3	3.00
CO-5	3	3	3	3	3	3	2	3	2.88	3	3	3	3	3	3	3	3	3.00
CO-6	3	3	3	3	3	3	3	3	3.00	3	3	3	3	3	3	3	3	3.00
Avg	**3.0**	**2.8**	**3.0**	**3.0**	**3.0**	**3.0**	**2.3**	**3.0**		**2.8**	**2.8**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	
PO Mean									**2.9**	PSO Mean								**2.96**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER – IV			
Part II English Poetry, Prose, Extensive Reading and Communicative English - IV			
Course Code 21UGEN41	**Hrs/ Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Objectives:

- To advance students' understanding of literary art and writings of universal appeal.
- To further the proficiency of communicative English through literary studies.

Course Outcome:

CO.No.	**Upon completion of this course, students will be able to**	**PSO Addressed**	**CL**
CO-1	comprehend better the language and literary components of texts	1	Un
CO-2	gain deeper insight into literary experience and expressions of writers	2	Un
CO-3	be competent in conversational and functional English	3	Ap
CO-4	employ nuances of verbal and non-verbal techniques in communication	5, 6	Ap
CO-5	adopt right perspectives of human values for life	4, 5	Ap
CO-6	face interviews and competitive exams with confidence	7	Ap

21UGEN41-Poetry, Prose, Extensive Reading and Communicative English- IV

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	2	3	3	3	3	2	2.75	3	2	3	3	3	3	2	3	2.75
CO-2	3	3	2	3	2	2	3	3	2.63	3	3	3	3	3	3	3	2	2.88
CO-3	2	3	3	3	3	3	3	2	2.75	3	3	3	2	3	2	3	3	2.75
CO-4	3	3	2	3	3	3	3	3	2.88	2	3	2	3	3	3	3	3	2.75
CO-5	3	3	3	3	3	3	2	3	2.88	3	3	2	3	3	2	3	3	2.75
CO-6	3	3	3	3	2	3	3	2	2.75	2	3	3	3	3	3	3	2	2.75
Avg	**2.8**	**3.0**	**2.5**	**3.0**	**2.7**	**2.8**	**2.8**	**2.5**		**2.7**	**2.8**	**2.7**	**2.8**	**3.0**	**2.7**	**2.8**	**2.7**	
PO Mean									**2.77**	PSO Mean								**2.77**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER IV			
Core IV	**Electronics and Communication**		
Course Code: 21UPHC41	**Hrs/Week:4**	**Hrs/Sem:60**	**Credits:4**

Objectives:

1. To develop competent technocrats who can strive continuously in pursuit of professional excellence in the field of Electronics and Communication
2. To establish a unique learning environment to enable the students to face the challenges in Electronics and Communication Engineering field
3. To facilitate an understanding of circuit analysis, transistors and op amp

Course Outcome:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	recall semiconductors (K1)	2	Re
CO –2	explain a universal divider bias (K2)	2	Un
CO –3	construct inverting and non inverting amplifier (K3)	2, 6	Ap
CO –4	summarize the types of networks (K2)	2	Un
CO –5	prove Thevenin's and Norton's theorem (K5)	2, 6	Ev
CO –6	outline the principle of amplitude modulation reception (K4)	2	An

21UPHC41-Electronics and Communication

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	3	3	2	2	2	2.50	3	2	3	3	2	3	2	2	2.50
CO-2	3	3	2	2	3	2	2	2	2.38	3	3	2	2	2	3	2	2	2.38
CO-3	3	2	3	3	3	3	2	2	2.63	3	3	2	3	3	3	2	2	2.63
CO-4	3	3	3	2	3	2	2	2	2.50	3	2	3	2	2	3	2	2	2.38
CO-5	3	2	2	3	3	3	2	2	2.50	3	3	2	3	3	3	2	2	2.63
CO-6	3	3	2	2	3	3	2	2	2.50	3	2	3	3	2	3	2	2	2.50
Avg	**3.0**	**2.5**	**2.5**	**2.5**	**3.0**	**2.5**	**2.0**	**2.0**		**3.0**	**2.5**	**2.5**	**2.7**	**2.3**	**3.0**	**2.0**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.5**
Strength of PO Correlation					Strong					Strength of PSO Correlation					Strong			

SEMESTER-IV			
Part III	**Allied Mathematics-II**		
Code : 21UMAA41	**Hrs/Week: 6**	**Hrs/Sem: 90**	**Credits: 4**

Vision:
Aims to help physical science students to achieve their goals and to develop their mathematical skills.

Mission:
To help students to appreciate the uses of derivatives and integrals in day today life and solve real life problems.

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	POs addressed	CL
CO-1	identify the difference between partial differential equation and ordinary differential equation	1	An
CO-2	classify various types of partial differential equations and form the partial differential equation	3	Un
CO-3	solve differential equations using Laplace transform	5	An
CO-4	set up the regions and integrate double integrals in rectangular and polar coordinates.	2	Ev
CO-5	use Green's theorem to evaluate line integrals along simple closed contours of the plane	3	Cr
CO-6	identify and understand the concept of Beta integrals and Gamma integrals	2	Ap

21UMAA41-Allied Mathematics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
CO-2	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
CO-3	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
CO-4	3	3	3	2	3	2	2	2	**2.5**	3	3	3	3	3	3	2	2	**2.8**
CO-5	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
CO-6	3	3	3	3	3	3	2	2	**2.8**	3	3	3	3	3	3	2	2	**2.8**
Avg	**3**	**3**	**3**	**2.8**	**3**	**2.7**	**2**	**2**		**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	
PO Mean									**2.7**	PSO Mean								**2.8**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER V			
Core V (Common Core)	**Material Science**		
Course Code : 21UPCC51	**Hrs./Week :6**	**Hrs./Sem :90**	**Credits :5**

Objectives:

1. To study the different crystal structures and crystal imperfections
2. To understand the usage of the appropriate materials while designing electronic system.
3. To enrich the students about the background theory and properties of different materials.
4. To classify different magnetic materials.
5. To appreciate different methods of synthesis of nanomaterials

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO – 1	identify the basic symmetry elements and operations of crystals, distinguish the types of crystals and enumerate the various crystal imperfections (K1)	2	Re
CO – 2	rank the properties of new materials like metallic glasses, shape memory alloys, high temperature materials, smart materials and biomaterials and apply them in various walks of life (K5)	2	Ev
CO – 3	justify the wave nature of the matter and its experimental study(K5)	2	Ev
CO – 4	distinguish magnetic materials based on susceptibility(K4)	2,1	An
CO – 5	summarise the uses of magnetic materials in various field (K2)	2,1	Un
CO – 6	outline the synthesis methods of nano materials(K4)	2,4	An

21UPCC51-Material Science

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	2	3	3	2	2	2.50	3	2	3	2	3	3	2	2	2.50
CO-2	2	3	3	2	3	2	2	2	2.38	2	3	3	3	2	2	2	2	2.38
CO-3	3	3	3	3	2	3	2	2	2.63	3	3	2	2	3	3	2	2	2.50
CO-4	3	2	3	2	3	2	2	2	2.38	2	3	3	3	2	3	2	2	2.50
CO-5	2	3	2	3	3	3	2	2	2.50	3	2	2	3	3	2	2	2	2.38
CO-6	3	3	3	3	3	2	2	2	2.63	3	3	3	3	3	3	2	2	2.75
Avg	**2.7**	**2.7**	**2.8**	**2.5**	**2.8**	**2.5**	**2.0**	**2.0**		**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.7**	**2.0**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.5**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER V			
Core VI	**Digital Electronics**		
Course code: 21UPHC51	**Hrs./Week : 5**	**Hrs./Sem : 75**	**Credits :5**

Objectives:

1. To enlighten our students on the concepts of digital electronics.
2. To understand number systems
3. To understand logic gates and Boolean algebra
4. To gain knowledge to design electronic circuits like counters, registers, multivibrators, A/D and D/A converters

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	recall binary numbers (K1)	2,6	Re
CO –2	summariase the functions of encoder and decoder (K2)	2,6	Un
CO –3	construct logic gates (K3)	2, 6	Ap
CO –4	analyse the construction of counters and shift register (K4)	2,6	An
CO –5	distinguish A/D from D/A conversions (K4)	2, 6	An
CO-6	prove De Morgan's laws (K5)	2,6	Ev

21UPHC51-Digital Electronics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	2	1	3	2	2	2	2.25	3	3	2	2	2	3	2	1	2.25
CO-2	3	3	2	2	3	3	2	2	2.50	3	3	2	3	2	3	2	2	2.50
CO-3	3	3	2	2	3	3	2	2	2.50	3	3	2	3	3	3	2	2	2.63
CO-4	3	3	3	3	3	3	2	2	2.75	3	3	2	3	3	3	2	2	2.63
CO-5	3	3	3	3	3	3	2	2	2.75	3	3	3	3	3	3	2	1	2.63
CO-6	3	3	3	2	3	3	1	1	2.38	3	3	2	3	3	3	1	1	2.38
Avg	**3.0**	**3.0**	**2.5**	**2.2**	**3.0**	**2.8**	**1.8**	**1.8**		**3.0**	**3.0**	**2.2**	**2.8**	**2.7**	**3.0**	**2.0**	**1.5**	
PO Mean									**2.52**	PSO Mean								**2.5**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER -V			
Core VII	**Computational Physics**		
Course Code : 21UPHC52	**Hrs./Week : 5**	**Hrs./Sem : 75**	**Credits : 5**

Objectives:

1. To have knowledge about the aspects of C++ language
2. To apply C++ language to write various programs for solving some important problems in Physics
3. To know about Microprocessor architecture and programming 8085

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	describe programs for solving various problems in physics (K1)	4	Re
CO –2	distinguish between one dimensional and two dimensional arrays (K4)	4	An
CO –3	summaries the various types of constructors (K2)	4	Un
CO –4	design a simple c++ program for function (K1)	4	Re
CO –5	test the program to write two hexadecimal numbers using 8085 (K5)	4	Ev
CO –6	solve arithmetic operations using 8085 (K3)	4	Ap

21UPHC52-Computational Physics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	2	2	2	3	2	2	2.25	3	3	3	3	2	3	2	2	2.63
CO-2	3	3	2	3	2	3	2	2	2.50	3	2	2	2	2	3	2	2	2.25
CO-3	3	2	2	2	3	3	2	2	2.38	2	2	3	3	2	3	2	2	2.38
CO-4	3	2	2	3	3	3	2	2	2.50	2	3	2	3	3	3	2	2	2.50
CO-5	3	2	3	3	3	3	2	2	2.63	3	3	3	3	3	3	2	2	2.75
CO-6	3	3	3	3	3	3	2	2	2.75	3	3	2	3	3	3	2	2	2.63
Avg	**3.0**	**2.3**	**2.3**	**2.7**	**2.7**	**3.0**	**2.0**	**2.0**		**2.7**	**2.7**	**2.5**	**2.8**	**2.5**	**3.0**	**2.0**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.52**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER V			
Core Elective	**Renewable Energy Sources**		
Course Code: 21UPHI51	**Hrs/Week:4**	**Hrs/Sem:60**	**Credits:4**

Objectives:

1. To provide an understanding of the present energy crisis and various energy sources
2. To enhance the students to understand about renewable energy sources and their utilization
3. To create awareness among the students about sustainable utilization and conservation of natural resources

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	construct solar cooker (K3)	3	Ap
CO –2	analyse the working of windmills used for power Generation (K4)	3	An
CO –3	list the renewable energy sources available in surplus (K1)	3	Re
CO –4	explain different types of solar water heaters (K2)	3	Un
CO –5	sketch out the classifications of wave system (K3)	3	Ap
CO –6	recall green house effect (K1)	3	Re

21UPHE51-Renewable Energy Sources

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	3	3	2	3	2	2.75	2	2	3	3	3	3	3	2	2.63
CO-2	3	2	3	3	3	2	3	2	2.63	2	3	3	3	2	3	3	2	2.63
CO-3	2	2	3	2	2	2	3	2	2.25	3	3	3	2	3	2	3	2	2.63
CO-4	3	3	3	3	3	2	3	2	2.75	2	3	3	2	2	2	3	2	2.38
CO-5	3	2	3	2	3	2	3	2	2.50	3	2	3	3	2	3	3	2	2.63
CO-6	2	3	3	2	2	2	3	2	2.38	1	3	3	3	1	1	3	2	2.13
Avg	**2.7**	**2.5**	**3.0**	**2.5**	**2.7**	**2.0**	**3.0**	**2.0**		**2.7**	**2.7**	**3.0**	**2.7**	**2.7**	**2.3**	**3.0**	**2.0**	
PO Mean									**2.54**	PSO Mean								**2.5**
Strength of PO Correlation				Strong						Strength of PSO Correlation					Strong			

SEMESTER – V			
Core Elective	**Mathematical Physics**		
Course Code: 21UPHE52	**Hrs / Week: 4**	**Hrs / Semester: 60**	**Credits: 4**

Objectives:

1. To acquire knowledge about vector analysis
2. To identify the eigen value / eigen vector of the matrix
3. To calculate the integral transforms

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO–1	recall scalar and vector function (K1)	6	Re
CO–2	discuss curl and divergence of a vector function (K2)	6	Un
CO–3	apply the fundamental properties of determinants (K3)	6	Ap
CO–4	evaluate problems in Fourier series (K5)	6	Ev
CO–5	analyse problems in Fourier transform (K4)	6	An
CO–6	discuss the properties of Laplace transform (K2)	6	Un

21UPHE52- Mathematical Physics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	2	2	2	2	2	2.38	3	3	2	2	3	3	2	2	2.50
CO-2	3	2	3	3	3	3	2	2	2.63	3	2	3	2	2	3	2	2	2.38
CO-3	3	3	3	2	2	2	2	2	2.38	3	3	2	2	3	3	2	2	2.50
CO-4	3	2	2	3	3	3	2	2	2.50	3	3	3	3	2	3	2	2	2.63
CO-5	3	3	3	2	3	2	2	2	2.50	3	3	2	3	3	3	2	2	2.63
CO-6	3	2	3	3	3	3	2	2	2.63	3	2	3	2	3	3	2	2	2.50
Avg	**3.0**	**2.5**	**2.8**	**2.5**	**2.7**	**2.5**	**2.0**	**2.0**		**3.0**	**2.7**	**2.5**	**2.3**	**2.7**	**3.0**	**2.0**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.52**
Strength of PO Correlation					Strong					Strength of PSO Correlation				Strong				

SEMESTER VI			
Core VIII	**Relativity and Quantum Mechanics**		
Course Code :21UPHC61	**Hrs./Week : 5**	**Hrs./Sem : 75**	**Credits : 4**

Objectives:

1. To acquire knowledge about 4D space and apply it to various physical problems
2. To understand the concepts of wave mechanics and its dualistic nature
3. To understand the physical interpretation of wave functions, expectation value, linkage between classical and quantum physics
4. To apply Schrodinger equation to 1D and 3D physical system

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	describe Michelson –Morley experiment (K1)	2	Re
CO –2	summarise the postulates of special theory of relativity (K2)	2	Un
CO –3	outline the De Brogli's hyposthesis for the dualistic nature of matter waves (K4)	2	An
CO –4	relate the uncertainty condition between displacement and momentum; energy and time (K3)	2	Ap
CO –5	prove Bohr's quantization condition for angular momentum (K5)	2	Ev
CO –6	apply to Schrodinger equation to 1D and 3D physical (K3)	2	Ap

21UPHC61-Relativity and Quantum Mechanics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	3	3	3	2	2	2	2.50	3	2	3	3	2	3	2	2	2.50
CO-2	3	3	3	2	2	3	2	2	2.50	3	3	2	2	3	3	2	2	2.50
CO-3	3	3	3	3	3	2	2	2	2.63	3	3	3	2	2	3	2	2	2.50
CO-4	3	3	2	2	2	3	2	2	2.38	3	3	2	3	3	3	2	2	2.63
CO-5	3	3	3	3	3	2	2	2	2.63	3	3	3	2	2	3	2	2	2.50
CO-6	3	3	2	2	3	3	2	2	2.50	3	3	2	2	3	3	2	2	2.50
Avg	**3.0**	**2.8**	**2.7**	**2.5**	**2.7**	**2.5**	**2.0**	**2.0**		**3.0**	**2.8**	**2.5**	**2.3**	**2.5**	**3.0**	**2.0**	**2.0**	
PO Mean									**2.52**	PSO Mean								**2.52**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER VI			
Core IX	**Atomic and Nuclear Physics**		
Course Code : 21UPHC62	**Hrs./Week : 4**	**Hrs./Sem : 60**	**Credits :3**

Objectives:

1. To enrich our students with the knowledge of atomic physics
2. To study the properties of α, β, γ rays
3. To understand the process of radioactivity and its applications
4. To understand the working of accelerators and detectors

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	recall the structure of atoms (K1)	2	Re
CO –2	understand the structure of nucleus and nuclear models (K2)	2	Un
CO –3	distinguish the properties of α, β, γ rays and their decay (K4)	2	An
CO –4	analyze the key features of nuclear fusion and fission (K3)	2	Ap
CO –5	evaluate half life, mean life, amount of substance left after disintegration (K5)	2	Ev
CO –6	discuss the principle and working of particle accelerators and detectors (K2)	2	Un

21UPHC62-Atomic and Nuclear Physics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	2	2	2	2	2	2	2	2.13	3	2	2	3	2	2	2	2	2.25
CO-2	3	3	2	3	2	2	3	2	2.50	3	3	2	2	2	2	2	2	2.25
CO-3	3	3	3	2	3	2	2	2	2.50	3	3	3	2	3	3	2	2	2.63
CO-4	3	3	3	3	2	3	3	2	2.75	3	3	3	3	2	3	3	2	2.75
CO-5	3	3	3	2	3	2	2	2	2.50	3	3	3	3	3	3	2	2	2.75
CO-6	3	3	3	3	3	3	1	2	2.63	3	3	2	3	2	3	2	2	2.50
Avg	**3.0**	**2.8**	**2.7**	**2.5**	**2.5**	**2.3**	**2.2**	**2.0**		**3.0**	**2.8**	**2.5**	**2.7**	**2.3**	**2.7**	**2.2**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.52**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

SEMESTER VI			
Core X	**Opto Electronics & Fibre Optic Communication**		
Course Code : 21UPHC63	**Hrs/Week:4**	**Hrs/Sem:60**	**Credits:4**

Objectives:

1. To expose the students to the fundamentals of optoelectronics
2. To facilitate the students to know the principles and characteristics of fiber optic communication
3. To enrich the students with the fundamentals of semiconductors

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	recall the basic principles of semiconductors (K1)	2	Re
CO –2	explain the formation of energy bands of semiconductors (K2)	2	Un
CO –3	outline the optical characteristics of semiconductors (K4)	2	An
CO –4	classify optical detectors (K3)	2	Ap
CO –5	analyze and classify the structure of optical fibres, its types and various optical losses (K4)	2	An
CO -6	outline the different types of optical losses (K4)	2	An

21UPHC63 -Opto Electronics and Fibre Optics Communication

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	2	2	3	2	2	2	2.38	3	3	2	2	2	3	2	2	2.38
CO-2	3	3	2	2	3	2	2	2	2.38	3	3	2	2	2	3	2	2	2.38
CO-3	3	3	3	2	3	2	2	2	2.50	3	3	2	2	2	3	2	2	2.38
CO-4	3	3	3	2	3	3	2	2	2.63	3	3	2	3	3	3	2	2	2.63
CO-5	3	3	3	3	3	3	2	2	2.75	3	3	3	3	2	3	2	2	2.63
CO-6	3	3	3	3	3	3	2	2	2.75	3	3	3	3	3	3	2	2	2.75
Avg	**3.0**	**3.0**	**2.7**	**2.3**	**3.0**	**2.5**	**2.0**	**2.0**		**3.0**	**3.0**	**2.3**	**2.5**	**2.3**	**3.0**	**2.0**	**2.0**	
PO Mean									**2.56**	PSO Mean								**2.52**
Strength of PO Correlation					Strong					Strength of PSO Correlation					Strong			

SEMESTER VI			
Core XI	**Advanced Physics**		
Course Code :21UPHC64	**Hrs./Week : 4**	**Hrs./Sem : 60**	**Credits : 4**

Objectives:

1. To know about laser and its application in medicine industry
2. To study ‘what is thin film, its importance and applications
3. To know about polymers, superconductors and nuclear space materials

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	recall the fundamentals of laser (K1)	4	Re
CO –2	summarise the applications of laser drilling (K2)	4	Un
CO –3	classify the polymers(K3)	4	Ap
CO –4	outline the structure of polymers (K4)	4	An
CO –5	criticize BCS theory (K5)	4	Ev
CO –6	discuss the materials and their properties for nuclear and space applications (K2)	4	Un

21UPHC64-Advanced Physics

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	2	3	3	2	1	2	2.38	3	2	3	2	2	3	1	2	2.25
CO-2	3	2	3	2	3	3	2	2	2.50	3	2	2	3	3	3	2	2	2.50
CO-3	2	3	3	3	3	2	2	2	2.50	2	3	3	3	2	3	2	2	2.50
CO-4	3	3	2	2	3	3	2	2	2.50	2	3	2	3	3	3	2	2	2.50
CO-5	3	3	2	3	3	2	2	2	2.50	3	3	3	3	2	3	2	2	2.63
CO-6	3	3	3	2	3	3	2	2	2.63	3	3	3	3	3	3	2	2	2.75
Avg	**2.8**	**2.8**	**2.5**	**2.5**	**3.0**	**2.5**	**1.8**	**2.0**		**2.7**	**2.7**	**2.7**	**2.8**	**2.5**	**3.0**	**1.8**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.52**
Strength of PO Correlation				Strong						Strength of PSO Correlation					Strong			

SEMESTER VI			
Core XII	**Microprocessor 8086 and Microcontroller**		
Course Code : 21UPHC65	**Hrs./Week : 5**	**Hrs./Sem : 75**	**Credits : 4**

Objectives:

1. To develop background knowledge and core expertise in 8086 microprocessor and 8051 microcontroller
2. To expose the architecture and instruction set of 8086 microprocessor and 8051 microcontroller
3. To know about Assembly – Language programs

Course Outcome:

CO.No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO –1	conclude the architecture of 8086 microprocessor (K5)	4	Ev
CO –2	categorize addressing modes of the 8086 microprocessor (K4)	4	An
CO –3	discuss the instruction set of the 8086 microprocessor (K2)	4	Un
CO –4	recall the basic introduction to 8051microcontroller (K1)	4	Re
CO –5	compile the assembly level programs using instruction set (K3)	4	Ap
CO –6	compare timers and counters (K4)	4	An

21UPHC65-Microprocessor 8086 and Microcontroller

	PO									PSO								
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**Avg**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO-5**	**PSO-6**	**PSO-7**	**PSO-8**	**Avg**
CO-1	3	3	3	2	3	2	2	2	2.50	3	3	2	3	3	3	2	2	2.63
CO-2	3	3	2	3	3	3	2	2	2.63	3	3	3	3	2	2	2	2	2.50
CO-3	3	2	3	2	3	2	2	2	2.38	3	3	2	3	3	2	2	2	2.50
CO-4	2	2	1	3	3	3	2	2	2.25	2	2	2	3	3	2	2	2	2.25
CO-5	3	3	3	2	3	3	2	2	2.63	3	3	2	3	3	3	2	2	2.63
CO-6	3	2	3	3	3	3	2	2	2.63	3	3	3	3	2	3	1	2	2.50
Avg	**2.8**	**2.5**	**2.5**	**2.5**	**3.0**	**2.7**	**2.0**	**2.0**		**2.8**	**2.8**	**2.3**	**3.0**	**2.7**	**2.5**	**2.0**	**2.0**	
PO Mean									**2.5**	PSO Mean								**2.5**
Strength of PO Correlation				Strong						Strength of PSO Correlation				Strong				

Attainment of Course Outcomes of the BSc Physics Programme

Course Code	Course Outcomes															
	Programme Outcomes (PO)								Programme Specific Outcomes (PSO)							
	PO - 1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PSO -1	PSO -2	PSO -3	PSO -4	PSO -5	PSO -6	PSO-7	PSO-8
21ULTA11	2.8	2.5	2.6	3	2.8	2.5	2.3	3	2.6	2.8	2.8	2.8	2.8	3	2.8	2.6
21ULFA11	3	3	2.8	3	3	3	2.3	3	2.6	3	2.8	2.8	2.8	3	3	3
21UGEN11	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2	2.5
21UPHC11	3	2.3	2.3	2.7	2.5	2.7	2.5	2	3	2.5	2.7	2.5	2.5	2.5	2.2	2
21UCHA11	2.8	2.8	2	2.7	2.3	2.7	2.5	3	3	2.7	2.8	2.3	2.8	2.3	2.6	3
21ULTA21	2.8	2.7	2.7	3	2.8	2.5	2.5	2.8	2.7	2.8	2.7	2.8	2.8	2.7	2.8	2.7
21ULFA21	2.8	3	3	3	3	3	2.3	3	3	3	3	2.8	3	3	3	3
21UGEN21	2.7	2.5	2.5	2.7	2.5	2.5	2.5	2.5	2.5	2.7	2.7	2.3	2.7	2.5	2.4	2.3
21UPHC21	3	2.5	2.5	2.7	2.7	2.7	2	2	3	2.3	2.5	2.8	2.3	3	2	2
21UCHA22	2.8	3	2.7	2.7	2	2.7	2	3	3	3	3	3	3	2.8	3	3
21ULTA31	2.7	2.8	2.7	3	2.8	2.5	2.5	2.8	2.5	2.8	2.7	2.8	2.8	2.7	2.8	2.7
21ULFA31	2.8	3	2.8	3	3	3	2.7	3	2.7	3	3	2.8	3	3	2.8	3
21UGEN31	2.8	2.7	2.5	3	2.5	3	2.7	2.5	2.5	2.8	2.7	2.8	2.8	2.3	3	2.3
21UPHC31	3	2.5	2.5	2.7	2.7	2.7	2	2	3	2.5	2.5	2.5	2.5	3	2	2
21UMAA31	3	3	3	2.8	3	2.7	2	2	3	3	3	3	3	3	2	2
21ULTA41	2.7	2.5	2.7	2.7	2.8	2.5	2.8	2.8	2.7	2.8	2.8	2.5	2.8	2.7	2.8	2.7
21ULFA41	3	2.8	3	3	3	3	2.3	3	2.8	2.8	3	3	3	3	3	3
21UGEN41	2.8	3	2.5	3	2.7	2.8	2.8	2.5	2.7	2.8	2.7	2.8	3	2.7	2.8	2.7
21UPHC41	3	2.5	2.5	2.5	3	2.5	2	2	3	2.5	2.5	2.7	2.3	3	2	2
21UMAA41	3	3	3	2.8	3	2.7	2	2	3	3	3	3	3	3	2	2
21UPCC51	2.7	2.7	2.8	2.5	2.8	2.5	2	2	2.7	2.7	2.7	2.7	2.7	2.7	2	2
21UPHC51	3	3	2.5	2.2	3	2.8	1.8	1.8	3	3	2.2	2.8	2.7	3	2	1.5
21UPHC52	3	2.3	2.3	2.7	2.7	3	2	2	2.7	2.7	2.5	2.8	2.5	3	2	2
21UPHI51	2.7	2.5	3	2.5	2.7	2	3	2	2.7	2.7	3	2.7	2.7	2.3	3	2
21UPHE52	3	2.5	2.8	2.5	2.7	2.5	2	2	3	2.7	2.5	2.3	2.7	3	2	2
21UPHC61	3	2.8	2.7	2.5	2.7	2.5	2	2	3	2.8	2.5	2.3	2.5	3	2	2
21UPHC62	3	2.8	2.7	2.5	2.5	2.3	2.2	2	3	2.8	2.5	2.7	2.3	2.7	2.2	2
21UPHC63	3	3	2.7	2.3	3	2.5	2	2	3	3	2.3	2.5	2.3	3	2	2
21UPHC64	2.8	2.8	2.5	2.5	3	2.5	1.8	2	2.7	2.7	2.7	2.8	2.5	3	1.8	2
21UPHC65	2.8	2.5	2.5	2.5	3	2.7	2	2	2.8	2.8	2.3	3	2.7	2.5	2	2
Average Correlation	**2.87**	**2.72**	**2.64**	**2.71**	**2.76**	**2.65**	**2.27**	**2.37**	**2.81**	**2.77**	**2.69**	**2.70**	**2.70**	**2.80**	**2.40**	**2.33**
Mean Overall Score	**2.64**	The POs and PSOs are strongly correlated with the Cos of the programme														