SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)

SCHOOL OF ARTS AND SCIENCE

DEPARTMENT OF MATHEMATICS

B.Sc. MATHEMATICS (HONOURS)

ACADEMIC REGULATIONS 2023

(R-2023)

CURRICULUM AND SYLLABUS

SEMESTER – I										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A23TAT101C / A23FRT101C	Tamil-I / French - I	MIL	3	0	0	3	25	75	100
2	A23GET101C	General English I	ENG	3	0	0	3	25	75	100
3	A23MAT101D	Calculus	DSC	3	1	0	4	25	75	100
4	A23MAT102D	Trigonometry	DSC	3	1	0	4	25	75	100
5	A23PHD101D	Allied physics	IDC	3	1	0	4	25	75	100
Practical										
6	A23PHL109D	Allied Physics practical	IDC	0	0	4	2	50	50	100
Skill Enhancement Courses										
7	A23ENSA02C	Soft Skills	SEC	0	0	4	2	100	0	100
Ability Enhancement Course										
8	A23AETA01C	Public Administration	AEC	2	0	0	1	100	0	100
Employability Enhancement Course										
9	A23MAC101D	Certificate Course-I	EEC	0	0	4	-	100	0	100
							23	475	425	900

SEMESTER – II										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
1	A23MAT203D	MATRICES AND THEORY OF EQUATIONS	MJD	3	1	0	4	25	75	100
2	A23MAT204D	VECTOR CALCULUS	MJD	3	1	0	4	25	75	100
3	A23MAD202D	STATISTICS - II	MID	3	1	0	4	25	75	100
4	A23ENSA03C	COMMUNICATION SKILLS	MLD	3	0	0	3	25	75	100
5	A23TAT202C / A23FRT202C	TAMIL II / FRENCH II	AEC	3	0	0	2	25	75	100
6	A23GET202C	ENGLISH II	AEC	3	0	0	2	25	75	100
7	A23MAS201D	LOGICAL REASONING	SEC	0	0	6	3	50	50	100
8	A23VAC201C	UNDERSTANDING INDIA	VAC	2	0	0	2	100	0	100
9	A23VAC202C	ENVIRONMENTAL STUDIES	VAC	2	0	0	2	100	0	100
Employability Enhancement Course										
10	A23MAC202D	Certificate Course-II	EEC	0	0	4	-	100	0	100
							26	500	500	1000

SEMESTER – III										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
1	A23MAT305D	REAL ANALYSIS I	MJD	3	1	0	4	25	75	100
2	A23MAT306D	ELEMENTS OF DISCRETE MATHEMATICS	MJD	3	1	0	4	25	75	100
3	A23MAD303D	STATISTICS - III	MID	3	1	0	4	25	75	100
4	A23XXXXXX	PERSONAL FINANCE	MLD	3	0	0	3	25	75	100
5	A23GET303C	ENGLISH	AEC	3	0	0	2	25	75	100
6	A23MAS302D	LATEX	SEC	0	0	6	3	50	50	100
7	A23VAC303C	HEALTH AND WELLNESS, YOGA EDUCATION, SPORTS AND FITNESS	VAC	2	0	0	2	100	0	100
Employability Enhancement Course										
10	A23MAC303D	Certificate Course-III	EEC	0	0	4	-	100	0	100
							22	375	425	800

SEMESTER – IV										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
1	A23MAT407D	Real Analysis II	MJD	3	1	0	4	25	75	100
2	A23MAT408D	Group Theory	MJD	3	1	0	4	25	75	100
3	A23MAT409D	Elements of Differential Equations	MJD	3	1	0	4	25	75	100
4	A23MAD404D	Statistics - IV	MID	3	1	0	4	25	75	100
5	A23VAC404C	Digital and Technological Solutions	VAC	2	0	0	2	100	0	100
6	A23MAN401D	Community Engagement	SKD	2	0	6	2	50	50	100
Employability Enhancement Course										
11	A23MAC404D	Certificate Course-IV	EEC	0	0	4	-	100	0	100
							20	350	350	700

SEMESTER – V										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
1	A23MAT510D	MATHEMATICAL MODELING	MJD	3	1	0	4	25	75	100
2	A23MAT511D	RING THEORY	MJD	3	1	0	4	25	75	100
3	A23MAT512D	COMPLEX ANALYSIS I	MJD	3	1	0	4	25	75	100
4	A23MAT513D	FOURIER SERIES AND FOURIER TRANSFORM	MJD	3	1	0	4	25	75	100
5	A23MAD505D	OPERATIONS RESEARCH I	MID	3	1	0	4	25	75	100
6	A23XXXXXX	SUMMER INTERNSHIP	SKD	0	0	6	4	50	50	100
							24	175	425	600

SEMESTER – VI										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
1	A23MAT614D	PROGRAMMING USING SCILAB -THEORY & PRACTICAL	MJD	3	1	0	4	25	75	100
2	A23MAT615D	COMPLEX ANALYSIS II	MJD	3	1	0	4	25	75	100
3	A23MAT616D	INTRODUCTION TO LINEAR ALGEBRA	MJD	3	1	0	4	25	75	100
4	A23MAT617D	GRAPH THEORY I	MJD	3	1	0	4	25	75	100
	A23MAD606D	OPERATIONS RESEARCH II	MID	3	1	0	4	25	75	100
							20	125	375	500

SEMESTER – VII										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
1	A23MAT718D	NUMERICAL METHODS USING SCILAB – THEORY & PRACTICAL	MJD	3	1	0	4	25	75	100
2	A23MAT719D	MECHANICS I (STATICS)	MJD	3	1	0	4	25	75	100
3	A23MAT720D	GRAPH THEORY II	MJD	3	1	0	4	25	75	100
4	A23MAD707D	FUZZY ALGEBRA	MID	3	1	0	4	25	75	100
	A23MAD708D	BESSEL'S FUNCTIONS	MID	3	1	0	4	25	75	100
							20	125	375	500

SEMESTER – VIII										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
1	A23MAT821D	TOPOLOGY	MJD	3	1	0	4	25	75	100
2	A23MAT822D	MECHANICS II (DYNAMICS)	MJD	3	1	0	4	25	75	100
3	A23XXE6XXX	RESEARCH PROJECT OR 3 MAJOR DISCIPLINARYCOURSES	MID	3	1	0	12	50	50	100
4	A23MAT823D	DIFFERENTIAL GEOMETRY	MJD	3	1	0		25	75	100
	A23MAT824D	FUNCTIONAL ANALYSIS	MJD	3	1	0		25	75	100
	A23MAT825D	NUMBER THEORY	MJD	3	1	0		25	75	100
							20	100/125	200/375	300/500

Department	TAMIL	Programme: **B.Sc. (Mathematics)**						
Semester	**First**	Course Category Code: **AEC**			*End Semester Exam Type: **TE**			
Course Code	**A23TAT101C**	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**TAMIL – I**	**3**	**0**	**0**	**3**	**25**	**75**	**100**
(Common to **BA., B.Sc., BBA., B.COM., BCA., B.COM CS.,**)								

Prerequisite	+2 வகுப்பில் தமிழை ஒரு பாடமாக கொண்டிருக்க வேண்டும்..
Course Objectives	• செவ்விலக்கிய தன்மை கொண்ட தமிழ்மொழியின் சிறப்பினை எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• இரண்டாயிரம் ஆண்டுகாலத் தமிழின் தொன்மையையும் வரலாற்றையும் அதன் விழுமியங்களையும் பண்பாட்டையும் எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• தமிழ் இலக்கியம் உள்ளடக்கத்திலும், வடிவத்திலும் பெற்றமாற்றங்கள், அதன் சிந்தனைகள், அடையாளங்கள் ஆகியவற்றைக் காலந்தோறும் எழுதப்பட்ட இக்கியங்களின் வழியாகக் கூறுவதற்கு இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• வாழ்வியல் சிந்தனைகள், ஒழுக்கவியல் கோட்பாடுகள், சமத்துவம், சூழலியல் எனப் பல கூறுகளை மாணவர்களுக்கு எடுத்துரைக்கும் விதத்தில் இப்பாடத்திட்டம் உருவாக்கப்பட்டுள்ளது.
	• சிந்தனை ஆற்றலைப் பெருக்குவதற்குத் தாய்மொழியின் பங்களிப்பினை உணர்த்த இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.

Course Outcome	**On completion of the course, the students will be able to**		BT Mapping (Highest Level)
	CO1	இலக்கியங்கள் உணர்த்தும் வாழ்வியல் நெறிமுறைகளைப் பேணிநடத்தல்.	**K3**
	CO2	நமது எண்ணத்தை வெளிப்படுத்தும் கருவியாகத் தாய்மொழியைப் பயன்படுத்துதல்.	**K3**
	CO3	தகவல் தெடர்புக்குத் தாய்மொழியின் முக்கியத்துவத்தை உணர்தல்.	**K2**
	CO4	தாய்மொழியின் சிறப்பை அறிதல்.	**K2**
	CO5	இலக்கிய இன்பங்களை நுகரும் திறன்களை வளர்த்தல்.	**K3**

UNIT-I	**இக்கால இலக்கியம்- மரபுக்கவிதைகள்- புதுக்கவிதைகள்- சிறுகதை**	**Periods: 09**	
மரபுக்கவிதைகள் - பாரதியார்-வெள்ளிப் பனிமலையின் மீதுலாவுவோம்... (13 பாடல்கள்)**-** பாரதிதாசன்-புரட்சிக்கவி (பேரன்புக் கொண்டவரே...முதல் **-** கவிஞனுக்கும் காதலிக்கும் மீட்சிதந்தார் வரை) தங்கப்பா - பனிப்பாறை நுனிகள் - வாழ்க்கை ஓவியம். **புதுக்கவிதைகள்-**அப்துல் ரகுமான் - வடலூரும் வார்தாவும் - யுகி - உயிர்ப்பு (இயற்கையின் எலும்பு முறிப்பு) **– சிறுகதை -** ஆர்.சூடாமணி - சாம்பலுக்குள்.			**CO1**

UNIT-II	**நாடகம் -உரைநடை- நாவல்.**	**Periods: 09**	
நாடகம் - பிரபஞ்சன் - முட்டை - **உரைநடை** - இரா.வேங்கடாசலபதி - அந்தக் காலத்தில் காப்பி இல்லை **–நாவல் -** இரா.முருகவேள் - மிளிர்கல்.			**CO2**

UNIT-III	**பக்தி இலக்கியம் -சைவம்-**	**Periods: 09**	
பக்தி இலக்கியம் -சைவம்-திருஞானசம்பந்தா - முதல் திருமுறை - தோடுடையசெவியன்...பாடல் மட்டும் - திருநாவுக்கரசர் - நான்காம் திருமுறை - கூற்றாயினவாறு...பாடல் மட்டும்- சுந்தரர் - ஏழாம் திருமுறை - பித்தாபிறைசூடீ...பாடல் மட்டும் - மாணிக்கவாசகர் - திருவாசகம் - புல்லாய் புழுவாய்...பாடல் மட்டும் - திருமூலர் - திருமந்திரம் - ஆர்க்கும் இடுமின்...பாடல் மட்டும் - காரைக்காலம்மையார்-திருவிரட்டை மணிமாலை - அன்பால் அடைவதெவ்வாறு...பாடல் மட்டும். **வைணவம் -** பொய்கையாழ்வார் - வையம் தகளியாய்...பாடல் மட்டும் -பூதத்தாழ்வார் - அன்பே தகளியாய்...பாடல் மட்டும் - பேயாழ்வார் - திருக்கண்டேன் பொன்மேனி...பாடல் மட்டும் - நம்மாழ்வார் - திருவாய்மொழி - உளன் எனின்...பாடல் மட்டும் - பெரியாழ்வார் - பெரியாழ்வார் திருமொழி - வாக்குத் தூய்மை...பாடல் மட்டும் -ஆண்டாள - நாச்சியார் திருமொழி– என்பு உருகி இனவேல்...பாடல் மட்டும் - **கிறித்துவம் -** இரட்சண்ய மனோகரம் **-** ஆவிக்குறுவெந்துயர்...முதல் உனையல்லது பற்றுதோ வரை - **இஸ்லாம் -** குணங்குடி மஸ்தான் சாகிபு– ரகுமான் கண்ணி -அடைத்த மனக்கோட்டை...முதல் என்கண் வரை			**CO3**

UNIT-IV	**சிற்றிலக்கியம் - முத்தொள்ளாயிரம் - உலா- கலம்பகம்- பள்ளு- இடைக்காலப் புலவர்கள்**	**Periods: 09**	
சிற்றிலக்கியம் - முத்தொள்ளாயிரம் - 1.வேரறுகைபம்பிச் சுரையாய்...2.மாலை விலைபகர்வார்... 3.என்னை உரையல் ...எனத் தொடங்கும் பாடல்கள் மட்டும் - **உலா** - குலோத்துங்கசோழன் உலா **-** தாளை அரவிந்தச் சாதி...முதல் நிலவென்றாள் வரை - **கலம்பகம் -**திருவரங்கக்கலம்பகம் - உருமாறிப் பலபிறப்பும்...முதல் ஆடீர் வாசல் வரை - **பள்ளு -** முக்கூடற்பள்ளு - நாட்டுவளம் - கறைபட்டுள்ளது...எனத்தொடங்கும் பாடல் மட்டும் -**தூது**-அழகர் கிள்ளைவிடு தூது - இன்சொல்லை.....முதல் உபதேசமாக உரைப்பாய் வரை **இடைக்காலப் புலவர்கள் -** இராமலிங்க அடிகள் - மஹாதேவமாலை–படித்தேன்...முதல் பொய் உலகியல் வரை – வீரமாமுனிவர் திருக்காவலூர்க் கலம்பகம் - தழை–போதவிழ்ப்...எனத்தொடங்கும் பாடல் மட்டும் - மு.முஹம்மதுதஹா - ∴கௌதுமுஹிய்யித்தீன் பிள்ளைத் தமிழ் - வயிறுபுடைக்க உண்கின்றீர்...பாடல் மட்டும்.			**CO4**

UNIT-V	**மொழிப்பயிற்சி-இலக்கிய வரலாறு.**	**Periods: 09**	
மொழிப்பயிற்சி - 1.வலிமிகும் இடங்கள் ,வலிமிகா இடங்கள்.- 2.அகரவரிசைப்படுத்துதல்.-3.நேர்காணல் - **இலக்கிய வரலாறு -** இக்கால இலக்கியம், பக்தி இலக்கியம், சிற்றிலக்கியம் குறித்த பாடப்பகுதியை ஒட்டியது.			**CO5**

Lecture Periods: 45	**Tutorial Periods: -**	**Practical Periods: -**	**TotalPeriods:45**

Text Books

1. **பாரதியார் – பாரதியார் கவிதைகள்,** Kindle Edition> Published June 2, 2020.
2. **சிவகுமார். எஸ்., - கொங்குதேர் வாழ்க்கை,** பாடல் தொகுப்பு நூல் - தொகுதி -1 யுனைடெட் ரைட்டர்ஸ், சென்னை -86. முதற்பதிப்பு 2003.
3. **சூடாமணி.ஆர். - தனிமைத் தளிர், தேர்ந்தெடுத்த சிறுகதைகள்,** காலச்சுவடு பதிப்பகம், முதல் பதிப்பு: செப்டம்பர் 2013.
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5. **முருகவேள். இரா., - மிளிர்கல்,** ஐம்பொழில் பதிப்பகம், திருப்பூர், இரண்டாம் பதிப்பு, 2014.

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1. **வல்லிக்கண்ணன், புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும், ஸ்ரீசெண்பகா பதிப்பகம்**, ஜனவரி,1, 2020.

2. **சிற்பிபாலசுப்பிரமணியம் மற்றும் நீலபத்மநாபன் (ப.ஆசி.) – புதிய தமிழ் இலக்கிய வரலாறு, தொகுதி-1,2,3,** சாகித்திய அகாதெமி, புதுடெல்லி, 2013.
3. **பாக்கியமேரி, வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு (செம்மை மற்றும் விரிவுப் பதிப்பு),** பாரிநிலையம். சென்னை,
4. **ஆனந்தன், முனைவர்.சு., - தமிழ் இலக்கிய வரலாறு,** கண்மணி பதிப்பகம், திருச்சி-2. இருபத்தி மூன்றாம் பதிப்பு– 2015.
5. **பரந்தாமனார், அ.கி., - நல்ல தமிழ் எழுத வேண்டுமா,** பாரி நிலையம், சென்னை, 1998.

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2. http://www.tamilweb.com
3. http://www.tamilkodal.com
4. www.store.tamillexican.com
5. www.kala.tamilforu.blogspot.com

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	3	3	3	3	3	3	3
2	3	3	3	3	3	3	3	3
3	3	2	3	3	2	3	3	3
4	2	3	1	3	2	2	2	3
5	3	3	3	3	3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**FRENCH**	Programme: **B.Sc. (Mathematics)**						
Semester	**First**	Course Category Code: **AEC** *End Semester Exam Type:**TE**						
Course Code	**A23FRT101C**	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**FRENCH I**	**3**	**0**	**0**	**3**	**25**	**75**	**100**
(Common to **BA., B.Sc., BBA., B.COM., BCA., B.COM CS.,**)								

Prerequisite	Basic knowledge of French language
Course Objective	To introduce the basics of French language to the students.
	To enable the students to read, understand and write simple sentences.
	To help them to grasp the fundamentals of French grammar.
	To make the students to formulate correct phrases.
	To introduce them French and Francophone countries and their cultures.

Course Outcomes	***On completion of the course, the students will be able to***	BT Mapping (Highest Level)
	CO1 Have a general understanding of the language.	**K3**
	CO2 Analyze and interpret simple phrases written in French.	**K3**
	CO3 Have the basics of French grammar.	**K3**
	CO4 Communicate and ask basic questions in French language.	**K3**
	CO5 Appreciate the diversity and multiplicity of French and Francophone world.	**K3**

UNIT-I	**S'introduire**	**Periods:09**
1. Le francais, les Francais, la France 2. Je m'appelle Elise, et vous ? 3. Saluer, se presenter, remercier 4. Vous dansez ? D'accord 5. Interroger quelqu'un et donner des informations		**CO1**

UNIT-II	**Demander des questions sur quelqu'un**	**Periods:09**
1. Monica, Yokiko et compagnie 2. Dire ce qu'on l'aime 3. Les voisins de Sophie 4. Demander des informations sur quelqu'un		**CO2**

UNIT-III	**Expliquer quelque chose**	**Periods:09**
1. Tu vas au Luxembourg ? 2. Dire où on va, dire d'où on vient 3. Nous venons pour l'inscription 4. A vélo, en train, en avion… 5. Expliquer un itinéraire, proposer quelque chose		**CO3**

UNIT-IV	**Poser des questions et commander**	**Periods:09**
1. Pardon monsieur, le BHV s'il vous plait 2. Au marché 3. Acheter quelque chose, demander le prix 4. On déjeune ici ? 5. Aller au restaurant, comprendre un menu		**CO4**

UNIT-V	**Inviter et proposer quelque chose**	**Periods:09**
1. On va chez ma copine ? 2. Proposer quelque chose 3. Demander et donner des informations sur quelqu'un 4. Chez Susana 5. Etre invité chez quelqu'un		**CO5**

LecturePeriods:45	**TutorialPeriods:**	**PracticalPeriods:-**	**TotalPeriods:45**

TextBooks

1. Sylvie Poisson Quinton and Michèle Maheo, *Festival 1 Méthode de Français*, CLE editions, 2009
2. Nathalie Hirschsprung and Tony Tricot, *Cosmopolite 1*, Hachette editions, 2017
3. Caroline Veltcheff and Stanley Hilton, *Preparation du Delf A1*, Hachette editions, 2011

ReferenceBooks

1. Régine Mérieux and Yves Loiseau, *Latitudes 1*, Didier editions, 2017
2. Annie Berthet and Emmanuelle Daili, *Alter Ego + A1*, Hachette editions, 2012
3. Bruno Giradeau, *Réussir le Delf A1*, Didier editions, 2019
4. Richard Lescure, *Delf A1 150 Activités,* Langers and CLE, 2005
5. Manisha Verma, *La grammaire élémentaire française*, Notion Press, 2010

Web References

1. https://www.tv5monde.com
2. https://www.rfi.fr
3. https://www.lemonde.fr
4. https://www.frenchpodcasts.com
5. https://www.coursera.org

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	3	3	3	1	3	1	2
2	3	3	2	3	1	3	1	3
3	3	3	3	3	2	2	2	2
4	3	3	3	3	1	2	1	2
5	3	3	3	3	2	1	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**ENGLISH**			Programme: **B. Sc. (Mathematics)**				
Semester	**FIRST**			Course Category Code: **ENG**		End Semester Exam Type: **TE**		
Course Code	**A23GET101C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**GENERAL ENGLISH – I**	**3**	**0**	**0**	**3**	**25**	**75**	**100**
(Common to **B.A.., B.Sc., BCA** Branches)								
Prerequisite	Basic part-two language							
Course Objectives	To recognize the rhythms, metrics and other aspects of Literature.							
	To read a variety of texts critically and proficiently.							
	To enable the students to enjoy the flair of literature through the work of great writer.							
	To make the students to know the functions of basic grammar.							
	To enable them understanding the intrinsic nuances of writing in English language.							

Course Outcomes	***On completion of the course, the students will be able to***	BT Mapping (Highest Level)
	CO1 Comprehend and discuss the various facets of selected poems	**K3**
	CO2 Analyze and interpret texts written in English	**K3**
	CO3 Read drama with graduate-level interpretive and analytical proficiency	**K3**
	CO4 Improve the fluency and formation of grammatically correct sentence.	**K3**
	CO5 Enhance the writing skills for specific purposes	**K3**

UNIT-I	**POETRY**	**Periods: 09**
1. Rudyard Kipling – IF 2. William Wordsworth – Daffodils 4. Percy Bysshe Shelley – Ozymandias 5. William Ernest Henley – Invictus 6. Rabindranath Tagore – On the Nature of Love		**CO1**
UNIT-II	**PROSE**	**Periods: 09**
1. Bertrand Russell – The Road to Happiness 2. Charles Lamb – A Dissertation upon Roast Pig		**CO2**
UNIT-III	**SHORT STORIES**	**Periods: 09**
1. Oscar Wilde – The Devoted Friend 2. R. K. Narayan – God and the Cobbler		**CO3**
UNIT-IV	**DRAMA**	**Periods: 09**
1. H H Munro – The Death Trap 2.J.M. Synge – Riders to the Sea		**CO4**
UNIT-V	**GRAMMAR AND COMPOSITION**	**Periods: 09**
1. Parts of Speech 2.Subject-Verb Agreement 3.Letter Writing 4.Essay Writing		**CO5**

Lecture Periods: 45	**Tutorial Periods: 0**	**Practical Periods: -**	**Total Periods: 45**

Text Books

1. Narayan, R.K, Malgudi days, Indian Thought Publication, 2019
2. Synge John Millington, Riders to the Sea, Sahitya Sarowar Publisher, 2022
3. P. C. Wren, H. Martin, High School Wren and Martin English Grammar and Composition, S. Chand & Company Pvt. Ltd, 2022.

Reference Books

1. Lamb, Charles, Selected Prose, Penguin Classics Publication, 2nd Edition, 2013.
2. S.C. Gupta, English Grammar & Composition Very Useful for All Competitive Examinations, Arihant Publications, 2014.
3. Saki, H. H. Munro, F. Carruthers Gould, The Complete Works of Saki: Illustrated Edition: Novels, Short Stories, Plays, Sketches & Historical Works, including Reginald, The Chronicles of Clovis, ... The Death-Trap, The Westminster Alice Kindle Edition, e-artnow, 2018.
4. J.M. Synge, S.C. Narula. Riders to the Sea. Surjeet Publication. 2018.
5. S.C.Gupta. A Handbook for Letter Writing. Arihant Publication. 2016.

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1. https://www.englishcharity.com/of-love-by-francis-bacon-explanation/
2. https://www.poetry-archive.com/n/the_queens_rival.html
3. https://www.gradesaver.com/lady-windermeres-fan/study-guide/summary-act-i

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	2	3	2	3	2	3	1
2	3	2	3	2	1	3	2	1
3	3	2	3	3	3	2	3	1
4	2	3	2	3	3	3	2	2
5	3	2	3	3	1	3	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

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Department	**MATHEMATICS**	Programme: **B.Sc. (Mathematics)**						
Semester	**First**	Course Category Code: MJD			*End Semester Exam Type: **TE**			
Course Code	**A23MAT101D**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**CALCULUS**	**3**	**1**	**0**	**4**	**25**	**75**	**100**

Prerequisite	Mathematics should be a subject in +2.		
Course Objectives	To understand the concept of Maxima and minima of function of two and three variables.		
	To gain the knowledge of curvature and Radius of curvature.		
	To understand the concept of Envelope, Evolute and Asymptotes.		
	To introduce the Reduction formula.		
	To introduce change of order of integration.		
Course Outcome	**On completion of the course, the students will be able to**		BT Mapping (Highest Level)
	CO1	Find maxima and minima for the functions.	**K2**
	CO2	Understand the curvature and Radius of curvature.	**K2**
	CO3	Find asymptotes of rational algebraic curves.	**K3**
	CO4	Solve the Beta and Gamma functions.	**K3**
	CO5	Solve Area and Volume problems.	**K3**

UNIT-I	**DIFFERENTIAL CALCULUS**	**Periods: 12**	
Jacobians – Derivative of implicit function using differentials, composite functions - Total differential – maxima and minima functions of 2 and 3 independent variable, Lagrange's method [without proof].			**CO1**
UNIT-II	**DIFFERENTIAL CALCULUS[Contd]**	**Periods: 12**	
Curvature, Radius of Curvature in Cartesian and Polar coordinates, p-r equation.			**CO2**
UNIT-III	**DIFFERENTIAL CALCULUS[Contd]**	**Periods: 12**	
Evolutes, Envelope, Asymptotes: Methods [without proof] of finding asymptotes of rational algebraic curves with special cases.			**CO3**
UNIT-IV	**INTEGRAL CALCULUS**	**Periods: 12**	
Reduction formulae: $x^n e^{ax}$, $sin^n x$, $cos^n x$, $sin^m x cos^n x$ and $x^m (logx)^n$ - Beta, Gamma Functions and their Properties.			**CO4**
UNIT-V	**INTEGRAL CALCULUS[Contd]**	**Periods: 12**	
Change of order of Integration – Applications to Area, Surface Area and Volume.			**CO5**

Lecture Periods: 45	**Tutorial Periods: 15**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1. T. K. Manicavachagom Pillai, "Calculus Volume – I", Printers and Publishers, 1992.
2. S. Narayanan and T. K. Manicavachagom Pillai, "Calculus Volume I", S.Viswanathan Printers Publishers Pvt Limited, 2011.
3. P. Kandasamy, K. Thilagavathy, "Mathematics for B.Sc", Vol - I &II", S.Chand & Company Ltd., New Delhi, 2004.

Reference Books

1. S. Arumugam and Isaac, "Calculus, Volume I", New Gamma Publishing House,1991.
2. G. B. Thomas and R. L. Finney, "Calculus and Analytic Geometry",Addison Wesley, 9th Edition, 1995.
3. P. R. Vittal, "Calculus", Margham Publication, 2004.
4. Shanti Narayan (2001) Differential Calculus. Shyamlal Charitable Trust, New Delhi.
5. Shanti Narayan (2001) Integral Calculus.S.Chand& Co. New Delhi.

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4. https://theengineeringmaths.com/wp-content/uploads/2021/02/beta-gamma-functions-converted.pdf
5. http://archive.nitjsr.ac.in/course_assignment/MTH26MA1202Math%20-%20II%20[1a%20Multiple%20Integrals-%20theories%20from%20B.S.%20Grewal].pdf

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	2	3	2	3	2	3	1
2	3	2	3	2	1	3	2	1
3	3	2	3	3	3	2	3	1
4	2	3	2	3	3	3	2	2
5	3	2	3	3	1	3	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**MATHEMATICS**			Programme: **B.Sc (Mathematics)**				
Semester	**First**			Course Category Code: **MJD**		*End Semester Exam Type: **TE**		
Course Code	**A23MAT102D**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**TRIGONOMETRY**	**3**	**1**	**0**	**4**	**25**	**75**	**100**

Prerequisite	Mathematics should be a subject in +2.
Course Objectives	To familiarize the Expansions of trigonometric functions and their applications.
	To learn the types of hyperbolic functions.
	To study the basic concept of hyperbolic functions.
	To know the DeMoivre's Property and logarithm.
	To understand the concept of series in trigonometric functions.

Course Outcome	**On completion of the course, the students will be able to**		BT Mapping (Highest Level)
	CO1	Expand Trigonometric functions.	**K3**
	CO2	Apply the Basic rules of Expansions of power series.	**K3**
	CO3	Understand the basic concepts o Hyperbolic Functions.	**K2**
	CO4	Solve the problems by using De Moivre's Property.	**K3**
	CO5	Understand various methods for the summation of infinite trigonometric series.	**K2**

UNIT-I	**EXPANSION OF θ AND EQUATIONS**	**Periods: 12**
Expansions of $\cos n\theta$, $\sin n\theta$ – Expansion of $\tan n\theta$ in terms of $\tan\theta$ – Expansion of $\tan(A+B+C+...)$ – Formation of Equations.		**CO1**
UNIT-II	**MULTIPLES OF θ AND CIRCULAR FUNCTIONS**	**Periods: 12**
Powers of sine's and cosines of θ in terms of functions of multiples of θ – Expansion of $\sin\theta$ and $\cos\theta$ in a series of ascending powers of θ – Expansion of Inverse Circular Functions.		**CO2**
UNIT-III	**HYPERBOLIC FUNCTIONS**	**Periods: 12**
Definition – Hyperbolic function – Relation between Circular and Hyperbolic Functions – Inverse Hyperbolic Functions.		**CO3**
UNIT-IV	**PROPERTIES ON CIRCLE AND FACTORS**	**Periods: 12**
Resolving into Factors – Simple Problems only – De Moivre's Property on the Circle and Cote's Property on the Circle – Logarithm of complex quantities.		**CO4**
UNIT-V	**SUMMATION OF TRIGONOMETRIC SERIES**	**Periods: 12**
Summation of Trigonometric Series: Method of Differences – Gregory Series – Euler Series.		**CO5**

Lecture Periods: 45	**Tutorial Periods: 15**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1. S. Narayanan and, T. K. Manicavachagom Pillai, "Trigonometry", S.Viswanathan Printers & Publishers Pvt.Ltd. Chennai, 2004.
2. P. Kandasamy, K. Thilagavathy, "Mathematics for B.Sc. Vol.- I, II, III & IV", S. Chand & Company Ltd., New Delhi-55, 2004.
3. N. P. Bali, "Trigonometry", Krishna Prakasan Mandhir, 9, Shivaji Road, Meerut (UP),1994.

Reference Books

1. S. L. Loney, "Plane Trigonometry", Part II, Cambridge University Press, London.
2. S. Duraipandian and Laxmi Duraipandian, "Trigonometry". Emerald Publishers, Chennai,1984.
3. B. S. Grewal "Higher Engineering Mathematics". Khanna Publishers, New Delhi, 2003.
4. S.Sudha [1998], "Algebra and Trigonometry", Emerald Publishes, Chennai.
5. A.Singaravelu[2003],"Algebra and Trigonometry", Volume – I&II Meenakshi Agency, Chennai.

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2. https://faculty.atu.edu/mfinan/trigbook.pdf
3. https://users.auth.gr/~siskakis/GelfandSaul-Trigonometry.pdf
4. https://www.researchgate.net/publication/233481401_On_the_summation_of_trigonometric_series
5. https://www.somersetcanyons.com/ourpages/auto/2015/6/6/44956866/Chapter%2010%20Student.pdf

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**
1	2	3	3	3	2	3	2	1
2	3	2	3	2	1	3	2	1
3	3	2	3	3	2	2	3	1
4	2	3	3	3	3	3	2	2
5	3	2	3	3	2	3	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**PHYSICS**	Programme: **B.Sc. (Mathematics)**						
Semester	**First**	Course Category Code: **IDC**			*End Semester Exam Type: **TE**			
Course Code	**A23PHD101D**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**ALLIED PHYSICS**	**3**	**1**	**0**	**4**	**25**	**75**	**100**
(For B. Sc. Mathematics Students)								

Prerequisite	Basic Physics Knowledge.	
Course Objectives	The course presents an introduction to the physics of the objects whose sizes span from atomic dimensions to macroscopic, human scale dimensions, and beyond: atoms, molecules, gases, liquids, and solids.	
	The aim is to show how the properties of macroscopic bodies can be derived from the knowledge that matter is made up from atoms.	
	Recognize the difference between physical and chemical properties.	
	Distinguish between extensive and intensive properties.	
	To learn the mathematical formulations of dynamics problems.	
Course Outcome	**On completion of the course, the students will be able to**	BT Mapping (Highest Level)
	CO1 To describe the various phenomenon of Kinematics, Mechanics of Solids.	**K3**
	CO2 To describe the various phenomenons of Sound & Acoustics of different structures.	**K3**
	CO3 The relationships between physics on the atomic scale and the properties of matter. Techniques for finding appropriate averages to predict macroscopic behavior.	**K3**
	CO4 To describe the relationship and thermal behavior of various systems.	**K3**
	CO5 To describe various concepts of Optics, spectroscopy, Application of light, Fiber Optics etc.,	**K3**

UNIT-I	**MECHANICS**	**Periods: 12**	
Projectile – range of horizontal and inclined plane- impulse – impact – Impulsive force – laws of impact – direct and oblique impact of smooth sphere – loss in kinetic energy **–** impact of smooth sphere on a smooth horizontal plane Rotational motion and moment of inertia **–** calculation of Moment of inertia of ring **–** Hollow cylinder and sphere and Fly wheel **–** Acceleration of a body rolling down on an inclined plane **–** Compound Pendulum.			**CO1**
UNIT-II	**SOUND**	**Periods: 12**	
Introduction to longitudinal waves – Sound waves in gases – Energy distribution in sound waves – Intensity of sound waves – Longitudinal waves in a solid – Example: earthquake – Doppler Effect – Reflection and transmission of sound waves at boundaries – Diffraction of sound waves- Noise and music – Limits of human audibility – The decibel unit- Reverberation time – Sabine's formula for growth and decay – Acoustics of auditoriums and halls – Introduction to acoustic transducers.			**CO2**
UNIT-III	**PROPERTIES OF MATTER**	**Periods: 12**	
Stress – Strain – Hooke's law – Relation between elastic constants – poisson's Ratio – Expression for poisson's ratio in terms of elastic constants – work done in twisting –torsional pendulum – determination of rigidity modulus – Young's modulus – determination – uniform – non-uniform bending – Bending of beam, Torsion of cylinder, Bending beam, Determination of ´Y, Ƞ and σ.			**CO3**
UNIT-IV	**THERMAL PHYSICS**	**Periods: 12**	
Thermal conductivity – good & bad conductors – Forbe's method - Lee's disc method – relationship between thermal and electrical conductivities – Wiedemann Franz's law – Radiation – Prevost's theory of heat exchanges – law of cooling – Black body radiation – Kirchhoff's law – Wien's laws of energy distribution in black body radiation – Wien's displacement law – Rayleigh-Jean's law – Plank's law – pyrometry – solar constant – sources of solar energy &applications.			**CO4**
UNIT-V	**OPTICS**	**Periods: 12**	
Snell's law of reflection and refraction, reflection and refraction at spherical surfaces: formula for refraction at single spherical surface, sign convention – Electromagnetic spectrum – spectral responds of human eye.			**CO5**

Lecture Periods: 45	**Tutorial Periods: 15**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1. Sound, Saigal, S. Chand& Co, 1996
2. Mechanics, D.S. Mathur, S. Chand & Co, 2000
3. Properties of Matter, Brijlal Subramaniyam, S.Chand & Co, 2002.

Reference Books

1. Fundamentals of Physics, Resnick Halliday & Walker, Wiley Publishing Co,
2. Principles of Physics, Resnick Halliday & Walker, Wiley Publishing Co,
3. Concepts of Physics, HC Verma, Bharati Bhavan Publisher
4. Allied Physics – R. Murugesan S. Chand & Co. First Edition (2005).
5. Elements of Properties of Matter – D.S. Mathur, S. Chand & Co. (1999).

Web References

1. https://ocw.mit.edu/courses/physics/
2. https://www.einstein-online.info/en/category/elementary/
3. https://www.physicsclassroom.com/
4. https://rdarke.weebly.com/uploads/1/7/9/7/1797891/4b-notes-thermal5.pdf
5. https://sps.scripts.mit.edu:444/resources/gre/opticsNotes1.pdf

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)	Program Specific Outcomes (PSOs)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	2	3	3	3	2	3	2	1
2	3	2	3	2	1	3	2	1
3	3	2	3	3	2	2	3	1
4	2	3	3	3	3	3	3	2
5	3	3	2	3	2	3	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**PHYSICS**	Programme: **B.Sc. (Mathematics)**						
Semester	**First**	Course Category Code: **IDC**			*End Semester Exam Type: **LE**			
Course Code	**A23PHL109D**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**ALLIED PHYSICS PRACTICAL**	**0**	**0**	**4**	**2**	**50**	**50**	**100**
(For B. Sc. Mathematics Students)								

Prerequisite	Basic Physics Knowledge.		
Course Objectives	To provide a practical understanding of some of the concepts learnt in the theory course on Physics.		
	Evaluate the process and outcomes of an experiment quantitatively and qualitatively.		
	Extend the scope of an investigation whether or not results come out as expected.		
	Conduct an experiment collaboratively and ethically.		
	Collect data and revise an experimental procedure iteratively and reflectively.		
Course Outcome	**On completion of the course, the students will be able to**		BT Mapping (Highest Level)
	CO1	Ability to characteristics the Semiconductor devices. Capable of handling screw gauge, vernier Caliper and Polarimeter to find the surface tension.	**K3**
	CO2	Acquired basic knowledge about Potentiometer and magnetic field due to a current carrying coil.	**K3**
	CO3	Ability to prepare formal laboratory reports describing the results of experiments and to interpret the data from the experiment.	**K3**
	CO4	Ability to prepare formal laboratory reports describing the results of experiments and to interpret the data from the experiments.	**K3**
	CO5	Ability to know the practical knowledge to describe the experiments and to correlate the theoretical Values.	**K3**

List of Experiments **Periods: 30**

1. Newton's Ring – Determination of focal length of convex mirror.
2. Young's Modulus – Uniform bending.
3. Non-uniform Bending – Young's modulus.
4. Spectrometer – Determination of refractive index.
5. Lee's Disc – Thermal conductivity.
6. Sonometer – verification of Laws.
7. Spectrometer – Wavelength determination using grating – normal incidence.
8. Viscosity of Liquid – Poiseuille's flow method
9. Surface tension – Drop weight method.
10. Specific capacity of a liquid by cooling.

Lecture Periods: -	**Tutorial Periods: -**	**Practical Periods: 30**	**Total Periods: 30**

Text Books

1. B.Sc Practical Physics, CL Arora, S Chand & Co, 2010
2. Practical Physics M.N. Srinivasan, Sultan son Pub.
3. V Y Rajopadhye and V L Purohit, Textbook of experimental Physics.

Reference Books

1. Practical Physics C.C Ouseph, V.J.Rao and V.Vijayendran
2. D P Khandelwal, Laboratory Manual of Physics for UG classes (Vani Pub. House, New Delhi)
3. Physics for Degree Students, CL Arora, S.Chand & Co, 2010
4. Allied Physics – R. Murugesan S. Chand & Co. First Edition (2005).
5. Allied Physics – Dr. K. Thangaraj, Dr. D. Jayaraman Popular Book Department, Chennai.

Web References

1. http://www.iiserpune.ac.in/~bhasbapat/phy221_files/Gratings%20and%20Prism%20Spectrometer.pd
2. https://www.tec-science.com/thermodynamics/heat/experimental-setup-for-determining-the-thermal-conductivity/
3. https://spark.iop.org/interference-air-wedge#gref
4. https://www.labkafe.com/blog/sonometer-experiment-0222
5. https://studylib.net/doc/25502534/lab-report-on-surface-tension

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**
1	3	2	3	3	2	3	2	1
2	2	3	3	2	2	2	3	2
3	3	2	3	3	1	3	1	2
4	3	3	2	2	1	3	2	1
5	3	3	3	2	2	3	1	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)			End Semester Examination (ESE) Marks	Total Marks
	Model Exam	**Record**	**Attendance**		
Marks	30	10	10	50	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**ENGLISH**	Programme: **B.Sc. (Mathematics)**						
Semester	**FIRST**	Course Category Code: **SEC**			End Semester Exam Type: **TE**			
Course Code	**A23ENSA02C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**SOFT SKILLS**	**0**	**0**	**4**	**2**	**100**	**0**	**100**

Prerequisite	Journal reading and Newspaper reading.
Course Objectives	To train students in soft skills in order to enable them to be professionally competent.
	To facilitate the students for Goal setting and Goal Achieving skills.
	To enrich the sense of social responsibility and accountability of the students.
	To help the students to train them for Stress Management and Time Management
	To train the students to work with team environment and Creative thinking.

Course Outcomes	***On completion of the course, the students will be able to***	BT Mapping (Highest Level)
	CO1 Enhance the Soft skills and compete professionally	**K3**
	CO2 Achieve Goal setting and Goal Achieving skills	**K3**
	CO3 Improve their social responsibility and accountability skills	**K3**
	CO4 Enrich Stress Management and Time Management	**K3**
	CO5 Demonstrate the quality of a Team ship and Creative thinking	**K3**

UNIT-I	**POSITIVE ATTITUDE**	**Periods: 06**
Skills-Personal Skills: Knowing Oneself/Self-Discovery - Confidence Building - Defining Strengths of Attitude - formation of attitudes - psychological factors - the power of positive attitude - the benefits of positive attitude – developing positive attitude - negative attitude – the causes of negative attitude - the consequences of negative attitude - how to change negative attitude.		**CO1**

UNIT-II	**GOAL SETTING**	**Periods: 06**
Introduction - importance of goal setting - goal definition - types of goals - what exactly goal setting - why people don't set goals - how to choose the right goals - SMART GOALS - Career goals - benefits of career goal setting - goal setting tips		**CO2**

UNIT-III	**STRESS AND TIME MANAGEMENT**	**Periods: 06**
Definition of Stress management - types of stress - causes of stress - stress management and reduction techniques - Definition of Time management - Setting goals, planning – prioritizing - setting deadlines - multi-tasking - practicing self-discipline - overcoming procrastination.		**CO3**

UNIT-IV	**TEAMWORK SKILLS**	**Periods: 06**
Communication as Social Construction - Dynamics of professional Group communication - Group and Team - Team Building Process - Managing conflict and appreciating/respecting differences - Decision making & effective negotiation - Types of teams - Understanding, Identity and nurturing sensitivity (in terms of gender, orientation, language).		**CO4**

UNIT-V	**PROBLEM SOLVING THROUGH CREATIVE THINKING**	**Periods: 06**
Thinking Creatively - Improving Perceptions - Creative thinking as an essential skill - Techniques of creative thinking (such as brainstorming, lateral thinking, mind mapping, rich pictures, role play) - Practical problem solving through creative thinking - Case Study.		**CO5**

Lecture Periods: 30	**Tutorial Periods: -**	**Practical Periods:**	**Total Periods: 30**

Text Books

1. Sabina Pillai, Agna Fernandez, *Soft Skills and Employability Skills*, Cambridge University Press, 2017.
2. Jeff Butterfield, *Soft Skills for Everyone*, Cengage India Private Limited, 2nd Edition, 2020.
3. Alex K, *Soft Skills*, S Chand & Company, 1st Edition, 2014.

Reference Books

1. Barun Mitra, Personality Development and Soft Skills 2, Oxford University Press, 2016.
2. Prashant Sharma, Soft Skills 3rd Edition: Personality Development for Life Success, BPB Publications, 2021.
3. Ghosh, B.N, Managing Soft Skills for Personality Development, Tata McGraw Education Publication, 1st Edition, 2012.
4. R.S.Aggarwal. A Modern Approach to Non-Verbal. S Chand Publication. 2017.
5. K. K. Sinha, Business Communication, Galgotia Publishing, 4th Edition, 2011.

Web References

1. https://www.mindtools.com/a5ykiuq/personal-goal-setting
2.https://www.healthlinkbc.ca/health-topics/stress-management-managing-your-time
3.https://www.herzing.edu/blog/7-important-teamwork-skills-you-need-school-and-your-career
4.http://www.iiserpune.ac.in/~bhasbapat/phy221_files/Gratings%20and%20Prism%20Spectrometer.pd
5.https://www.tec-science.com/thermodynamics/heat/experimental-setup-for-determining-the-thermal-conductivity/

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	1	3	3	1	1	1	3	3
2	3	3	3	1	1	1	3	2
3	3	3	3	1	2	1	3	3
4	3	3	3	1	2	1	3	1
5	3	3	3	1	3	1	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Internal Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	80		0	10	10	0	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**MATHEMATICS**	Programme: **B.Sc. Mathematics**						
Semester	**First**	Course Category Code: **AECC**			*End Semester Exam Type: **TE**			
Course Code	**A23AETA01C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**PUBLIC ADMINISTRATION**	**2**	**0**	**0**	**1**	**100**	**0**	**100**
(Common to all Branches)								

Prerequisite	Basic knowledge of public administration.		
Course Objectives	**The main objectives of the course are,**		
	To introduce the elements of public administration.		
	To help the students obtain a suitable conceptual perspective of public administration		
	To introduce them the growth of institution devices to meet the need of changing times		
	To instill and emphasize the need of ethical seriousness in contemporary Indian Public Administration		
Course Outcome	**On completion of the course, the students will be able to**		BT Mapping (Highest Level)
	CO1	Understand the concepts and evolution of Public Administration.	**K2**
	CO2	Be aware of what is happening in the Public Administration in the country.	**K2**
	CO3	Explain the Territory Administration in the State and the Centre.	**K2**
	CO4	Appreciate emerging issues in Indian Public Administration.	**K3**

UNIT-I	**INTRODUCTION TO PUBLIC ADMINISTRATION**	**Periods: 07**	
Meaning, nature and Scope of Public Administration and its relationship with other disciplines- Evolution of Public Administration as a discipline — Woodrow Wilson, Henry Fayol , Max Weber and others - Evolution of Public Administration in India – Arthashastra – Colonial Administration upto 1947.			**CO1**
UNIT-II	**PUBLIC ADMINISTRATION IN INDIA**	**Periods: 08**	
Enactment of Indian Constitution - Union Government – The Cabinet – Central Secretariat -– All India Services – Training of Civil Servants – UPSC – NitiAyog – Statutory Bodies: The Central Vigilance Commission – CBI - National Human Rights Commission – National Women's Commission –CAG.			**CO2**
UNIT-III	**STATE AND UNION TERRITORY ADMINISTRATION**	**Periods: 08**	
Differential Administrative systems in Union Territories compared to States Organization of Secretariat: - Position of Chief Secretary, Functions and Structure of Departments, Directorates – Ministry of Home Affairs supervision of Union Territory Administration – Position of Lt.Governor in UT – Government of UnionTerritories Act 1963 – Changing trend in UT Administration in Puducherry and Andaman and Nicobar Island.			**CO3**
UNIT-IV	**EMERGING ISSUES IN INDIAN PUBLIC ADMINISTRATION**	**Periods: 07**	
Changing Role of District Collector – Civil Servants – Politicians relationship – Citizens Charter - Public Grievance Redressal mechanisms — The RTI Act 2005 – Social Auditing and Decentralization – Public Private partnership.			**CO4**

Lecture Periods: 30	**Tutorial Periods: -**	**Practical Periods: -**	**Total Periods:30**

Text Books

1. Avasthi and Maheswari, "Public Administration", Lakshmi Narain Agarwal, 1st Edition, 2016.
2. Ramesh K.Arora, "Indian Public Administration: Institutions and Issues", New Age InternationalPublishers, 3rdEdition, 2012.
3. RumkiBasu, "Public Administration: Concept and Theories", Sterling, 1st Edition, 2013.

Reference Books

1. Siuli Sarkar, "Public Administration in India", Prentice Hall of India, 2nd Edition, 2018.
2. M. Laxmikanth, "Public Administration", McGraw Hill Education, 1st Edition, 2011.
3. R.B.Jain, "Public Administration in India, 21st Century Challenges for Good Governance",Deep andDeepPublications, 2002.

Web References

1. http://cic.gov.in/
2. http://www.mha.nic.in/
3. http://rti.gov.in/
4. http://www.cvc.nic.in/

* TE – Theory Exam, LE – Lab Exam

Evaluation Method

Assessment	**Continuous Assessment Marks (CAM)**				**End Semester Examination (ESE) Marks**	**Total Marks**
	CAT 1	**CAT 2**	**Assignment***	**Attendance**		
Marks	70		20	10	0	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**MATHEMATICS**			Programme: **B.Sc (Mathematics)**				
Semester	**Second**			Course Category Code: **MJD**		*End Semester Exam Type: **TE**		
Course Code	**A23MAT203D**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**MATRICES AND THEORY OF EQUATIONS**	**3**	**1**	**0**	**4**	**25**	**75**	**100**

Prerequisite	**Mathematics** should be a subject in +2.
Course Objectives	To introduce the idea of matrices and to learn about the algebra of matrices
	To solve system linear equations using matrix Theory
	To develop the concept of the Sum of the powers of the roots.
	To introduce variety roots.
	To study the concept of biquadratic equations

Course Outcome		On completion of the course, the students will be able to	BT Mapping (Highest Level)
	CO1	Apply the concept of Matrix transformations.	**K3**
	CO2	Demonstrate an understanding of applications of Matrices	**K3**
	CO3	To learn the relation between the co-efficient and roots of polynomial equations.	**K2**
	CO4	Solve problems related to Multiple and Nature of position of roots	**K3**
	CO5	Analytic Methods for solving the polynomial equation of degrees 3 & 4.	**K2**

UNIT-I	**LINEAR SYSTEMS**	**Periods: 12**	
Linear systems - Matrices - Matrix operations - Properties of Matrix operation, Matrix transformations.			**CO1**
UNIT-II	**SOLUTIONS OF LINEAR SYSTEMS OF EQUATIONS**	**Periods: 12**	
Solutions of Linear systems of equations - Row echelon from reduced row echelon form – Polynomial interpolation - The inverse of a Matrix. - Linear Systems and inverses - LU- Factorization Method			**CO2**
UNIT-III	**THEORY OF EQUATIONS**	**Periods: 12**	
Division algorithm - Relation between roots and coefficients - Sum of the powers of the roots.			**CO3**
UNIT-IV	**THEORY OF EQUATIONS[Contd]**	**Periods: 12**	
Reciprocal equations - Transformation of equations: - Multiple roots - Nature of position of roots - Sturm's Theorem – Descarte's Rule.			**CO4**
UNIT-V	**THEORY OF EQUATIONS[Contd]**	**Periods: 12**	
Cardan's Method for solving Cubic equations – Ferrari's Method for solving biquadratic equations - New Newton's Method- Horner's Method			**CO5**

Lecture Periods: 45	**Tutorial Periods: 15**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1. Bernard Kolman Drid R. Hill, Introductory Linear Algebra, (8e),Pea rson India (2011).
2. Theory of Equations, Hari Kishan, Atlantic Publishers, 2022.
3. Theory of Equations, Lalji Prasad, New Revised Edition, 2016.

Reference Books

1. S. Arumugam and A Thangaand Isaac, Set Theory Number System and Theory of Equations, New Gamma publishing house (1997.)
2. A Text Book of Theory Of Equations January 2020 by Manoranjan Kr. Singh**.**
3. Algebra Volume-1, T.K. Manicavachagom Pillay , T.Natarajan and K.S. Ganapathy,. Viswanathan (Printers & Publishers) Pvt. Lid, (1999).

Web References

1. https://builtin.com/data-science/dot-product-matrix
2. https://math.emory.edu/~lchen41/teaching/2020_Fall/Section_2-7.pdf
3. https://www.dictionary.com/browse/division-algorithm
4. https://web.math.ucsb.edu/~padraic/mathcamp_2013/root_find_alg/Mathcamp_2013_Root-Finding_Algorithms_Day_2.pdf
5. https://cs.fit.edu/~wds/classes/adm/Lectures/HornerPolynomial.pdf

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**
1	2	3	3	3	2	3	2	1
2	3	2	3	2	1	3	2	1
3	3	2	3	3	2	2	3	1
4	2	3	3	3	3	3	2	2
5	3	2	3	3	2	3	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	**CAT 2**	**Model Exam**	**Assignment***	**Attendance**		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**MATHEMATICS**	Programme: **B.Sc. (Mathematics)**						
Semester	**Second**	Course Category Code: **MJD**			*End Semester Exam Type: **TE**			
Course Code	**A23MAT204D**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**VECTOR CALCULUS**	**3**	**1**	**0**	**4**	**25**	**75**	**100**

Prerequisite	Mathematics should be a subject in +2.	
Course Objectives	To enable students to Understand the fundamental concepts of vector calculus	
	To enable the students to learn the concepts of differentiation of vectors.	
	To find solutions of Solenoidal and Irrotational.	
	To know about the line integral.	
	To bring the knowledge of vector calculus and its application in theorems	
Course Outcome	**On completion of the course, the students will be able to**	BT Mapping (Highest Level)
	CO1 Understand the concept of Direction cosines and direction ratios	**K2**
	CO2 Gain logical skills in the formulation of differential equations	**K3**
	CO3 Compute divergence and curl of vectors.	**K3**
	CO4 Apply the various techniques of vector integration in solving Line and surface integrals.	**K3**
	CO5 Understand the concept of Gauss Divergence Theorem and Green's Theorem.	**K3**

UNIT-I	**INTRODUCTION**	**Periods: 12**
Introduction – Scalars and vectors – Representation of a vector and types of vectors – Algebra of vectors – Position vectors – Resolution of vectors – Direction cosines and direction ratios – Limit of a vector function – Continuity and derivative of vector function.		**CO1**
UNIT-II	**DIFFENENTIAL VECTOR CALCULUS**	**Periods: 12**
Differentiation of a vector – Geometrical Interpretation of the Derivative – Differentiation formulae – Differentiation of dot and cross Products – Partial Derivatives of Vectors – Differentials of Vectors.		**CO2**
UNIT-III	**GRADIENT, DIVERGENCE AND CURL**	**Periods: 12**
Vector Differential Operator Del - Gradient of a Scalar Function - Directional Derivative - Geometric Interpretation - Gradient of the sum of Functions; of the product of functions and of a function of function - Operations involving Del - Divergence of a Vector and its Physical Interpretation - Curl of a Vector and its Physical Interpretation - Expansion Formulae for Operators involving Del - Solenoidal and Irrotational.		**CO3**
UNIT-IV	**VECTOR INTEGRATION**	**Periods: 12**
The Line Integral - Surface Integral and its Physical Meaning – Stoke's Theorem		**CO4**
UNIT-V	**VECTOR INTEGRATION(CONTD.)**	**Periods: 12**
Green's Theorem, Gauss Divergence Theorem and Volume of integral - Simple problem		**CO5**

Lecture Periods: 45	**Tutorial Periods: 15**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1.M.D. Raisinghania and others. S. Chand & Co,Ltd., Ram Nagar New Delhi 110055, Vector Algebra, 1999.
2.Duraipandian, P., LaxmiDuraipandian, Vector Calculus, Emerald Publishers, 2003.
3.Shanti Narayan, P. K. Mittal, A Text Book of Vector Analysis (English) 19th Edition, S.Chand Publishers, 2013.

Reference Books

1.P.R.Vittal. (2004) Vector Calculus, Fourier series and Fourier Transform. Margham Publications, Chennai.
2.G.B.Thomas and R.L.Finney. (1998) Calculus and Analytic Geometry, Addison Wesley (9th Edn), Mass. (Indian Print).
3.M.K.Venkataraman. (1992) Engineering Mathematics-Part B. National Publishing Company, Chennai.
4.B.S.Grewal. Higher Engineering Mathematics (2002), Khanna Publishers, New Delhi

Web References

1.https://www.lehman.edu/faculty/anchordoqui/VC-3.pdf
2.https://www.rcet.org.in/uploads/files/LectureNotes/cse/S2/Mathematics%20-%20II%20Notes/Unit-2%20Vector%20Calculus.pdf
3.https://www.snggdcg.ac.in/pdf/study-material/mathematics/SMch18.pdf

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	2	2	3	2	3	2	3	1
2	3	2	3	3	1	3	3	1
3	3	2	2	3	3	2	3	1
4	2	3	2	3	3	2	2	2
5	3	2	3	3	1	3	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**MATHEMATICS**	Programme: **B.Sc (Mathematics)**						
Semester	**Second**	Course Category Code: **MID**			*End Semester Exam Type: **TE**			
Course Code	**A23MAD202D**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**STATISTICS II**	**3**	**1**	**0**	**4**	**25**	**75**	**100**

Prerequisite	Basic Statistics Knowledge		
Course Objectives	To introduce the normal distribution and its properties.		
	To develop an understanding of the special continuous probability distributions.		
	To introduce the concept of correlation and its measurement.		
	To develop an understanding of the linear and curvilinear regression models.		
	To introduce the concepts of theory of attributes and its applications.		
Course Outcome	**On completion of the course, the students will be able to**		BT Mapping (Highest Level)
	CO1	Solve the concept of Generating function.	**K3**
	CO2	Analyze and apply the knowledge of normal and gamma distribution.	**K3**
	CO3	Demonstrate the Application of correlation analysis.	**K2**
	CO4	Understand the difference between Linear and Curvilinear Regression	**K3**
	CO5	Know the applications of Classes and Class frequencies.	**K2**

UNIT-I	**NORMAL DISTRIBUTION**	**Periods: 12**	
Normal Distribution: Limiting form of binomial distribution – Characteristics – Mode – Median – Moment Generating function – Cumulant Generating Function – Moments of Normal distribution			**CO1**
UNIT-II	**SPECIAL CONTINUOUS PROBABILITY DISTRIBUTIONS**	**Periods: 12**	
Special Continuous Probability Distributions: Rectangular Distribution - Triangular distribution – Gamma Distribution – simple problems			**CO2**
UNIT-III	**CORRELATION**	**Periods: 12**	
Correlation: Karl pearson's coefficient of correlation – Calculation of the correlation coefficient for a bivariate frequency distribution – Rank correlation – Simple problems			**CO3**
UNIT-IV	**LINEAR AND CURVILINEAR REGRESSION**	**Periods: 12**	
Linear and Curvilinear Regression: Linear regression – Curvilinear regression - Regression curves – simple problems			**CO4**
UNIT-V	**THEORY OF ATTRIBUTES**	**Periods: 12**	
Theory of Attributes: Notations – Dichotomy – Classes and Class frequencies – Consistency of data – Independence of attributes – Association of attributes - Simple problems.			**CO5**

Lecture Periods: 45	**Tutorial Periods: 15**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1. S.C. Gupta & V.K. Kapoor, Fundamentals of Mathematical Statistics- Sultan Chand and Sons,12th Edition ,2022
2. S.P. Gupta, Statistical methods- Sultan Chand and Sons, 45th Edition 2017
3. R.S.N.Pillai & V. Bagavathi, Statistics –S.Chand & company LTD, Reprint 2014

Reference Books

1. Aliaga, Gunderson, "Interactive Statistics", 2nd Edition – Pearson/Prentice Hall
2. Hamilton, "Statistics with STATA", 8th Edition, Duxbury 2004.
3. P.R.Vittal, "Mathematical Statistics Ⅱ", Margham Publications -2002- Reprint 2012.
4. Weisberg, S, "Applied Linear Regression", John Wiley and Sons, New York - 1980.

5.Kokoska, "Introductory Statistics: A Problem-Solving Approach", Review copy, Freeman2011.

Web References

1. http://onlinestatbook.com/Online_Statistics_Education.pdf
2. http://www.stats.ox.ac.uk/student-resources/bammath/course-materials/
3. https://nptel.ac.in/courses/111/105/111105041/

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**
1	2	3	3	3	2	3	2	1
2	3	2	3	2	1	3	2	1
3	3	2	3	3	2	2	3	1
4	2	3	3	3	3	3	2	2
5	3	2	3	3	2	3	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**ENGLISH**	Programme: **B.Sc. (Mathematics)**						
Semester	**Second**	Course Category Code: **MLD**			End Semester Exam Type: **TE**			
Course Code	**A23ENSA03C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**COMMUNICATION SKILLS**	**3**	**0**	**0**	**3**	**25**	**75**	**100**

Prerequisite	Knowledge gained from communication and part-two language and new paper reading	
Course Objectives	To improve the skill of rapid reading and communicate efficiently	
	To decode and impart speaking skills with confidence	
	To train students in analyzing articles and Newspaper	
	To enhance the sense of social responsibility and accountability of the students	
	To expound the significance in Managerial skills	
Course Outcomes	***On completion of the course, the students will be able to***	BT Mapping (Highest Level)
	CO1 Understand the pattern to communicate effectively	**K3**
	CO2 Impart Speaking skills with self-confidence	**K3**
	CO3 Enhance their strategies in analyzing articles and Newspaper	**K3**
	CO4 The sense of social responsibility and accountability of the students	**K3**
	CO5 Expertise in Managerial skills	**K3**

UNIT-I	**COMMUNICATION SKILLS - SPEAKING**	**Periods: 06**
1. Aspects of speaking 2. Process of effective Speech 3. Techniques for effectual Presentation		**CO1**
UNIT-II	**SELF-MANAGEMENT SKILLS**	**Periods: 06**
1. Time Management 2. Stress Management 3. Emotional Management		**CO2**
UNIT-III	**COMMUNICATION SKILLS - READING**	**Periods: 06**
1. Article analysis 2. Comprehension 3. Skimming and Scanning		**CO3**
UNIT-IV	**SOCIAL SKILLS**	**Periods: 06**
1. Leadership 2. Teamwork 3. Decision making		**CO4**
UNIT-V	**PUBLIC SPEAKING AND PRESENTATION**	**Periods: 06**
1. Rules and Techniques for Public Speaking 2. Practice session (both, Public Speaking and Presentation)		**CO5**

Lecture Periods: -	**Tutorial Periods: -**	**Practical Periods: 30**	**Total Periods: 30**

Text Books

1. Barun K. Mitra, Personality Development and Soft skills, Oxford University Press, 2nd Edition, 2016.
2. Syamala, V, *Effective English Communication for you*, Chennai: Emerald Publisher, 1st Edition, 2002.
3. Sanjay Kumar &PusphLata. *Communication Skills*, Oxford University Press, 2nd Edition, 2015.

Reference Books

1. Murphy, John J, Pulling Together: 10 Rules for High-Performance Teamwork, Simple Truth Publication, 1st Edition, 2010.
2. Balasubramanian, T, *A Textbook of English Phonetics for Indian Students*, Trinity Press, 1st Ed, 1981.
3. Sardana,C.K, *The Challenge of Public Relations*, New Delhi: Harnand Publication,1st Edition, 1995.
4. Sabina Pillai, Agna Fernandez, *Soft Skills and Employability Skills*, Cambridge University Press, 2017.
5. Jeff Butterfield, *Soft Skills for Everyone*, Cengage India Private Limited, 2nd Edition, 2020.

Web References

1. https://blog.dce.harvard.edu/professional-development/10-tips-improving-your-public-speaking-skills
2. https://corporatefinanceinstitute.com/resources/careers/soft-skills/management-skills/
3. https://zety.com/blog/how-to-introduce-yourself
4. https://www.butte.edu/departments/cas/tipsheets/readingstrategies/skimming_scanning.html
5. https://www.mayoclinic.org/tests-procedures/stress-management/about/pac-20384898

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	3	3	2	3	1	3	3
2	3	3	3	2	3	1	3	2
3	3	3	3	2	2	1	3	2
4	3	3	3	3	3	1	3	2
5	3	3	2	2	2	1	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Internal Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	80		0	10	10	0	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**TAMIL**	Programme: **B.A.(TAMIL)**						
Semester	**SECOND**	Course Category Code: **AEC**			*End Semester Exam Type: **TE**			
Course Code	**A23TAT202C**	Periods/Week			Credit	MaximumMarks		
		L	T	P	C	CAM	ESE	TM
Course Name	**TAMIL – II**	**3**	**0**	**0**	**2**	**25**	**75**	**100**
(Common to **B.A, B.Sc., BBA., B.COM., BCA., B.COM CS.,**)								

Prerequisite	பன்னிரெண்டாம் வகுப்பில் தமிழை ஒரு பாடமாகப் பயின்றிருக்க வேண்டும்.
Course Objectives	• செவ்விலக்கிய தன்மை கொண்ட தமிழ்மொழியின் சிறப்பினை எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• இரண்டாயிரம் ஆண்டுகாலத் தமிழின் தொன்மையையும் வரலாற்றையும் அதன் விழுமியங்களையும் பண்பாட்டையும் எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• தமிழ் இலக்கியம் உள்ளடக்கத்திலும், வடிவத்திலும் பெற்றமாற்றங்கள், அதன் சிந்தனைகள், அடையாளங்கள் ஆகியவற்றைக் காலந்தோறும் எழுதப்பட்ட இக்கியங்களின் வழியாகக் கூறுவதற்கு இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.
	• வாழ்வியல் சிந்தனைகள், ஒழுக்கவியல் கோட்பாடுகள், சமத்துவம், சூழலியல் எனப் பல கூறுகளை மாணவர்களுக்கு எடுத்துரைக்கும் விதத்தில் இப்பாடத்திட்டம் உருவாக்கப்பட்டுள்ளது.
	• சிந்தனை ஆற்றலைப் பெருக்குவதற்குத் தாய்மொழியின் பங்களிப்பினை உணர்த்த இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.

Course Outcome	**On completion of the course, the students will be able to**		BT Mapping (Highest Level)
	CO1	இலக்கியங்கள் உணர்த்தும் வாழ்வியல் நெறிமுறைகளைப் பேணிநடத்தல்.	**K3**
	CO2	நமது எண்ணத்தை வெளிப்படுத்தும் கருவியாகத் தாய்மொழியைப் பயன்படுத்துதல்.	**K3**
	CO3	தகவல் தெடர்புக்குத் தாய்மொழியின் முக்கியத்துவத்தை உணர்தல்.	**K2**
	CO4	தாய்மொழியின் சிறப்பை அறிதல்.	**K3**
	CO5	இலக்கிய இன்பங்களை நுகரும் திறன்களை வளர்த்தல்.	**K3**

UNIT-I	**காப்பியம்**	**Periods: 09**	
சிலப்பதிகாரம்	- வழக்குரைகாதை–காவியுகுநீரும்...முதல் தோற்றான் உயிர்வரை (8 வரிகள்)		**CO 1**
மணிமேகலை	- பளிக்கறை புக்ககாதை–மதுமலர்க் கூந்தல்...முதல் புறமறிப் பாராய் வரை (106-121வரிகள்)		
பெரியபுராணம்	- இளையான்குடிமாறநாயனார்புராணம் - உள்ளம் அன்புகொண்டு...(17ஆவது பாடல்மட்டும்)		
கம்பராமாயணம்	- கும்பகர்ணவதைப்படலம் - உறங்குகின்ற கும்பகன்ன... (45ஆவதுபாடல் மட்டும்)		
தேம்பாவணி	- பாலமாட்சிப்படலம் - ஊட்டினார்அருள்...(229 பாடல் மட்டும்)		
சிறாப்புராணம்	- மழையழைப்பித்தப் படலம் - வேயினை முறித்து எனத் தொடங்கும் (15ஆவது பாடல் மட்டும்)		

UNIT-II	**பதினெண் கீழ்க்கணக்கு நூல்கள்**	**Periods: 09**	
திருக்குறள்	- வலியறிதல் (48),நெஞ்சொடுகிளத்தல் (125)		**CO 2**
நாலடியார்	- அரும்பெறல்...(பாடல் எண்:34)		
சிறுபஞ்சமூலம்	- பூவாது காய்க்கும்...(பாடல் எண்:22)		
ஐந்திணைஐம்பது	- சுனைவாய்ச் சிறுநீரை...(பாடல் எண்:38)		
கார்நாற்பது	- கருவிளை கண்மலர்போல் பூத்தன...(பாடல் எண்:34)		
களவழிநாற்பது	- ஞாட்பினுளெஞ்சிய (பாடல் எண்:2)		

UNIT-III	**சங்க இலக்கியம் - எட்டுத்தொகை**	**Periods: 09**	
ஐங்குறுநூறு	- பாடல் எண்:44 - தோழி கூற்று		**CO 3**
குறுந்தொகை	- பாடல் எண்:224 - தலைவி கூற்று		
நற்றிணை	- பாடல் எண்:284 - தலைவன் கூற்று		
அகநானூறு	- பாடல் எண்:145 - செவிலி கூற்று		
புறநானூறு	- பாடல் எண்:102 - ஔவையார்		
பரிபாடல்	- பாடல் எண்:3 - திருமால் வாழ்த்து (1-11வரிகள்)		

UNIT-IV	**பத்துப்பாட்டு**	**Periods: 09**	
பொருநராற்றுப்படை	- வாரியும் வடித்தும்...முதல் பெருந்தகு பாடினி வரை (25-47)		**CO 4**
சிறுபாணாற்றுப்படை	- பைந்தனை அவரை...முதல் வென்றிவேலூர் எய்தின் வரை (164-173)		
பெரும்பாணாற்றுப்படை	-பார்வையாத்த...முதல் பதம் மிகப் பருகுவீர் வரை (95-105)		
குறிஞ்சிப்பாட்டு	- அண்ணல் நெடுங்கோடு...முதல் சிவந்தகண்ணேம் வரை(54-61)		
மதுரைக்காஞ்சி	- மைபடுபெருந்தோள்...முதல் பெரும்பெயர் மதுரை வரை (687-699)		
நெடுநல்வாடை	- குளிர்காலக்காட்சி- கல்லென் துவலைத்...முதல் பண்ணுமுறை நிறுப்ப வரை (64-70)		

UNIT-V	**மொழிப்பயிற்சி, இலக்கியவரலாறு**	**Periods: 09**	
1.முதல், கரு, உரிப்பொருள் அறிதல் 2.அலகிட்டு வாய்ப்பாடு 3.அணிகள் அறிதல் **இலக்கிய வரலாறு** காப்பியம், அறஇலக்கியம், சங்க இலக்கியம் குறித்தப் பாடப்பகுதியை ஒட்டிய இலக்கிய வரலாறு.			**CO 5**

Lecture Periods: 45	**Tutorial Periods:-**	**Practical Periods:-**	**TotalPeriods:45**

Text Books

6. **சிவகுமார்,எஸ்., -கொங்குதேர்வாழ்க்கை,** பாடல் தொகுப்பு நூல் - தொகுதி -1, யுனைடெட் ரைட்டர்ஸ்,சென்னை -86. முதற்பதிப்பு.2003.
7. **சாமிநாதையர் டாக்டர் உ.வே. குறுந்தொகை மூலமும் உரையும்,** டாக்டர் உ.வே.சாமிநாதையர் நூல் நிலையம், வெளியீட்டெண்: 277,பெசன்ட் நகர், சென்னை– 600 090.எட்டாம் பதிப்பு– 2020.
8. **வேங்கடராமன், வித்துவான்.ஹெச். (பதி.) - நற்றிணை மூலமும் உரையும்,**டாக்டர்உ.வே.சாமிநாதையர் நூல் நிலையம், வெளியீட்டெண்: 277,பெசன்ட் நகர்,சென்னை– 600 090. எட்டாம் பதிப்பு– 2020.
9. **திருவள்ளுவர்- சேயோன் டாக்டர் - திருக்குறள்,**மயிலைத் திருவள்ளுவர்தமிழ்ச் சங்கம்,184,பிராட்வே,சென்னை 600 108
10. **வேங்கடசாமிநாட்டார்,ந.மு., - கார்நாற்பது,களவழிநாற்பது–**சாரதாபதிப்பகம்,சாந்திஅடுக்ககம், ஸ்ரீகிருஷ்ணபுரம் தெரு, இராயப்பேட்டை,சென்னை -14. முதற்பதிப்பு: 2005.

Reference Books

6. **சிற்பிபாலசுப்பிரமணியம் மற்றும் நீலபத்மநாபன் (ப.ஆசி.) –புதியதமிழ் இலக்கியவரலாறு, தொகுதி-1,2,3,** சாகித்திய அகாதெமி, புதுடெல்லி, 2013.
7. **பாக்கியமேரி, வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு (செம்மை மற்றும் விரிவுப் பதிப்பு),** பாரிநிலையம். சென்னை,
8. **ஆனந்தன். சு. முனைவர்., - தமிழ் இலக்கியவரலாறு,**கண்மணிபதீப்பகம், திருச்சி-2. இருபத்தி மூன்றாம் பதிப்பு– 2015.
9. **பரந்தாமனார்,அ.கி.,நல்லதமிழ் எழுதவேண்டுமா,**பாரிநிலையம்,சென்னை, 1998.
10. **சம்பத், இரா., (பதி) -தொல்காப்பியக் கவிதையியல் வடிவம்-பாடுபொருள்-உத்தி-வகைமை,**புதுச்சேரிமொழியியல் பண்பாட்டுஆராய்ச்சிநிறுவனம், புதுச்சேரி-605 001. முதற்பதிப்பு–அக்டோபர் 2015.

Web References

5. http://www.tamilvu.org
6. http://www.tamilweb.com
7. http://www.tamilkodal.com
4. www.store.tamillexican.com
5. www.kala.tamilforu.blogspot.com
6. www.noolagam.com

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO 3
1	3	3	3	3	3	3	3	3
2	3	3	3	3	3	3	3	3
3	3	2	3	3	2	3	3	3
4	2	3	2	3	2	2	3	2
5	3	2	3	2	3	3	3	3

Correlation Level: 1: Low, 2: Moderate, 3: High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**FRENCH**	Programme: **B.Sc. (Mathematics)**						
Semester	**Second**	Course Category Code: **AEC**				*End Semester Exam Type:**TE**		
Course Code	**A23FRT202C**	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**FRENCH II**	**3**	**0**	**0**	**2**	**25**	**75**	**100**
(Common to **BA., B.Sc., BBA., B.COM., BCA.,**)								

Prerequisite	Basic knowledge of French language
Course Objective	To introduce the basics of French language to the students
	To enable the students to read, understand and write simple sentences
	To help them to grasp the fundamentals of French grammar
	To make the students to formulate correct phrases
	To introduce them French and Francophone countries and their cultures

Course Outcomes	***On completion of the course, the students will be able to***		BT Mapping (Highest Level)
	CO1	Have a general understanding of the language	**K3**
	CO2	Analyze and interpret simple phrases written in French	**K3**
	CO3	Have the basics of French grammar	**K3**
	CO4	Communicate and ask basic questions in French language	**K3**
	CO5	Appreciate the diversity and multiplicity of French and Francophone world	**K3**

UNIT-I	**Parler des choses**	**Periods:09**	
1. Qu'est-ce qu'on offre? 2. L'interro-négation. 3. On Solde 4. Le comparatif. 5. Les fêtes			**CO1**
UNIT-II	**Découvrir le futur**	**Periods:09**	
1. Découvrir Paris en bus avec l'open tour. 2. Les verbes pronominaux 3. Si vous gagnez, vous ferez quoi? 4. Le futur simple 5. Les superlatifs.			**CO2**
UNIT-III	**Exprimer le climat et temps**	**Periods:09**	
1. Parasol ou parapluie 2. Le climat en France. 3. Quand il est midi à Paris? 4. L'emploi du temps:métro, boulot, restau. 5. Parler du temps qu'il fait.			**CO3**
UNIT-IV	**Paris et France - une vue**	**Periods:09**	
1. Vous allez vivre à Paris? 2. Les régions de France 3. L'avenir du français. 4. La place des adjectifs. 5. Souvenirs d'enfance.			**CO4**
UNIT-V	**Pratiquer la langue**	**Periods:09**	
1. J'ai fait mes études à Lyon. 2. Retour des Antilles 3. Raconter ses vacances. 4. Au voleur! Au voleur! 5. Les journaux en France.			**CO5**

Lecture Periods:45	**Tutorial Periods:**	**Practical Periods: -**	**LecturePeriods:45**

TextBooks

1. Sylvie Poisson Quinton and Michèle Maheo, *Festival 1 Méthode de Français*, CLE editions, 2009
2. Nathalie Hirschsprung and Tony Tricot, *Cosmopolite 1*, Hachette editions, 2017

ReferenceBooks

2. Régine Mérieux and Yves Loiseau, *Latitudes 1*, Didier editions, 2017
3. Annie Berthet and Emmanuelle Daili, *Alter Ego + A1*, Hachette editions, 2012
4. Bruno Giradeau, *Réussir le Delf A1*, Didier editions, 2019

Web References

2. https://www.tv5monde.com
3. https://www.rfi.fr
4. https://www.lemonde.fr
5. https://www.frenchpodcasts.com
6. https://www.coursera.org

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**
1	3	3	3	3	3	1	2	3
2	3	3	3	3	3	1	2	3
3	3	3	3	3	3	1	2	3
4	2	3	3	3	3	1	2	3
5	1	2	1	1	1	1	2	3

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	**CAT 2**	**Model Exam**	**Assignment***	**Attendance**		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**ENGLISH**	Programme: **B.Sc. (Mathematics)**						
Semester	**Second**	Course Category Code:AEC			End Semester Exam Type: **TE**			
Course Code	**A23GET202C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**GENERAL ENGLISH - II**	**3**	**0**	**0**	**2**	**25**	**75**	**100**
(Common to B.A.., B.Sc. and BCA Branches)								

Prerequisite	Basic part-two language and knowledge gained from Grammar and Composition.	
Course Objectives	To train students to identify poetic forms and issues related to contexts	
	To enable the student in the skill of reading for ideas	
	To enable the students to enjoy the literature through the work of great writer	
	To introduce drama as a social product and a literary form	
	To hone composition skills in students	

Course Outcomes		***On completion of the course, the students will be able to***	BT Mapping (Highest Level)
	CO1	Comprehend and discuss the various facets of selected poems	**K3**
	CO2	Evaluate and Criticize the prose texts.	**K3**
	CO3	Illustrate various reflections and instances in short stories with personal experiences	**K3**
	CO4	Develop critical appreciation based on the understanding of the prescribed texts	**K3**
	CO5	Enhance the writing skills for specific purposes	**K3**

UNIT-I	**POETRY**	**Periods: 09**
1. Nissim Ezekiel - *Minority Poem* 2. Sarojini Naidu – *Indian Weaver* 3. Walt Whitman – *O Captain My Captain* 4. William Blake – *Tyger* 5. Rabindranath Tagore – *Paper Boat*		**CO1**
UNIT-II	**PROSE**	**Periods: 09**
1. Jawaharlal Nehru – *A Tryst With Destiny* 2. Martin Luther King – *I have a dream* 3. Swami Vivekananda – *Speech at world Parliament of Religion Chicago*		**CO2**
UNIT-III	**SHORT STORIES**	**Periods: 09**
1. Arthur Canon Doyle – *A Scandal in Bohemia* 2. Stephen Crane – *The Open Boat*		**CO3**
UNIT-IV	**DRAMA**	**Periods: 09**
1. Cedric Mount Short – *The Never Never Nest* 2. Fritz Karinthy – *Refund*		**CO4**
UNIT-V	**GRAMMAR AND COMPOSITION**	**Periods: 09**
1. Cause and Effect Analysis 2. Note Making 3. Picture Comprehension 4. Sentence Pattern 5. Sentence Punctuation		**CO5**

Lecture Periods: 45	**Tutorial Periods: 0**	**Practical Periods: -**	**Total Periods: 45**

Text Books

1. Pegasus, *Scandal in Bohemia & Other Stories*, B Jain Publisher, 2016.
2. Stephen Crane, *The Open Boat and Other Stories*, Createspace Independent Publisher, 2017.
3. Wren & Martin, *Primary School English Grammar and Composition*, Generics Publication, 2023.

Reference Books

1. Anjli Sehrawat, *Mother's Day : Bhagat Phoolsingh Women's University,* Notion Press Publication, 2022.
2. Martin Luther, Heming Daoudi, *Martin Luther King's I have a dream speech*, Kindle Edition, 2020.
3. Stephen Crane, *The Open Boat Stephen Crane*, Createspace Independent Publication, 2013.
4. Rabindranath Tagore, William Radice, *Selected Poems: Rabindranath Tagore*, Penguin Publication, 2000.
5. Swami Tapasyananda, *Swami Vivekananda his life and Legacy*, Ramakrishna Math Publication, 2008.

Web References

7. https://allpoetry.com/Minority-Poem
8. http://www.sourcecodeonline.com/list?q=the_never_never_nest_author_cedric_mount
9. https://www.cam.ac.uk/files/a-tryst-with-destiny/index.html
10. https://poets.org/poem/tyger
11. https://www.poetryfoundation.org/poems/45474/o-captain-my-captain

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PSO 1**	**PSO 2**	**PSO 3**
1	3	2	3	2	3	3	3	3
2	2	3	3	3	2	2	2	2
3	3	2	2	3	1	3	2	3
4	2	3	3	2	1	2	3	2
5	3	3	3	3	3	2	2	3

Evaluation Method

Assessment	**Continuous Assessment Marks (CAM)**					**End Semester Examination (ESE) Marks**	**Total Marks**
	CAT 1	**CAT 2**	**Model Exam**	**Assignment***	**Attendance**		
Marks	10		5	5	5	75	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**MATHEMATICS**	Programme: **B.Sc (Mathematics)**						
Semester	**Second**	Course Category Code: **SEC**			*End Semester Exam Type: **LE**			
Course Code	**A20MAS201D**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**LOGICAL REASONING**	**0**	**0**	**6**	**3**	**50**	**50**	**100**

Prerequisite	Mathematics should be a subject in +2.		
Course Objectives	To familiarize the concept of Number Series, Alphabet Series, and Alpha-Numeric Series.		
	To know the Simple Analogy, Choosing the Analogous pair, Double Analogy and Word Analogy		
	To gain the knowledge of Number and Letter Classification Problems.		
	To understand the concept of Coding and Decoding.		
	To know the concept of blood relations.		
Course Outcome	**On completion of the course, the students will be able to**		BT Mapping (Highest Level)
	CO1	Analyze and complete various series patterns.	**K3**
	CO2	Apply analogical reasoning to identify and complete analogous pairs.	**K3**
	CO3	Classify objects and identify odd ones out based on given criteria.	**K2**
	CO4	Decode and encode messages using various coding techniques.	**K3**
	CO5	Solve puzzles and problems related to blood relations and directional sense.	**K2**

UNIT-I	**SERIES COMPLETION**	**Periods: 10**	
Number Series, Alphabet Series, and Alpha-Numeric Series. Students will learn to identify and complete various series patterns.			**CO1**
UNIT-II	**ANALOGY**	**Periods: 10**	
The Analogous Pair, Simple Analogy, Choosing the Analogous pair, Double Analogy, Word Analogy, and Number Analogy			**CO2**
UNIT-III	**CLASSIFICATION / ODD ONE OUT**	**Periods: 10**	
Word Classification, Number Classification, and Letter Classification, helping students identify patterns and outliers.			**CO3**
UNIT-IV	**CODING – DECODING**	**Periods: 10**	
Letter Coding, Number Coding, Matrix Coding, Substitution, Deciphering Message Word Codes, and Jumbled Coding, enhancing code-based problem-solving skills.			**CO4**
UNIT-V	**BLOOD RELATIONS**	**Periods: 8**	
Deciphering Jumbled up Descriptions and solving Relation Puzzles, including Direction Sense Tests.			**CO5**

Lecture Periods: 45	**Tutorial Periods: 15**	**Practical Periods: -**	**Total Periods: 60**

Text Books

1. Quantitative Aptitude for competitive Examination, R.S. Aggarwal. S. Chand and company Ltd, 152, Anna salai, Chennai. (2001)
2. Quantitative Aptitude and Reasoning Praveen PHI P.Ltd.
3. Scope and treatment as in “Quantitative Aptitude” by R.S. Aggarwal. S. Chand and company Ltd., Ram Nagar, New Delhi (2007).

Reference Books

1. Quantitative Aptitude for competitive Examination-Abhijit Guha-TMH.
2. Verbal and Non-Verbal Reasoning" by R.S. Agarwal
3. Mathematics for life-M. Immaclate-Nanjil offset Printers.
4. Objective Arithmetic’s-R. S-Aggarwal-S. Chand & Co.

Web References

1. https://www.careerbless.com/aptitude/qa/home.php
2. https://www.javatpoint.com/aptitude/quantitative

https://www.letsstudytogether.co/quantitative-aptitude-topic-wise-questions-and-answers-pdf- download/

* TE – Theory Exam, LE – Lab Exam

Evaluation Method

Assessment	**Continuous Assessment Marks (CAM)**			**End Semester Examination (ESE) Marks**	**Total Marks**
	Model Exam	**Record**	**Attendance**		
Marks	30	10	10	50	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**Mathematics**	Programme: **B.Sc. Mathematics**						
Semester	**Second**	Course category Code: **VAC**			End Semester Exam Type:-**LE**			
Course Code	**A23VAC201C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**UNDERSTANDING INDIA**	2	0	0	2	100	0	100
(Common to all UG Programmes)								

Prerequisite	Basic Knowledge of geography, knowledge systems and the Constitutions of India	
Course Objective	To understand the Geography of India	**CO1**
	To know more about the India's freedom struggle and knowledge systems	**CO2**
	To understand the myths, folklore and tribal cultures of India	**CO3**
	To know about the social structure, caste, community class and gender	**CO4**
	To understand the evolution of states, nature, traditional and modern and the Indian constitution	**C05**

Course Outcome	*On completion of the course, the students*		BT Mapping (Highest Level)
	CO1	Understood the Geography of India	**K3**
	CO2	Acquainted knowledge about the India's freedom struggle and knowledge systems.	**K3**
	CO3	Understood the myths, folkfore and tribal culture of India	**K3**
	CO4	Gained knowledge about the social structure, caste, community and gender	**K3**
	CO5	Understood the evolution of states, nature and tradition of Indian Constituion.	**K3**

UNIT-I	**GEOGRAPHY OF INDIA**	**Periods: 06**
• India on the map of the world and its neighbouring countries • Geographical diversities		**CO 1**
UNIT-II	**HISTORY OF INDIA**	**Periods: 06**
• India's Freedom Struggle • An introduction to Indian knowledge systems		**CO 2**
UNIT-III	**COMMUNICATING CULTURE**	**Periods: 06**
• Oral narratives: Myths, tales and folklore • Introduction to the Tribal Cultures of India		**CO3**
UNIT-IV	**INDIAN SOCIAL STRUCTURE**	**Periods: 06**
• Continuity and change of the Indian Social Structure: Caste, Community, Class and Gender		**CO 4**
UNIT - V	**UNDERSTANDING INDIAN POLITY**	**Periods: 06**
• The evolution of State in India: Nature and origin • Interpretating India: Traditional, Modern and Contemporary • Constitution as a living document		**CO5**

Lecture Periods: 30	**Tutorial Periods: -**	**Practical Periods:**	**Total Periods: 30**

Text Books.

- Ramesh Dutta Dikshit, *Political Geography: Politics of Place and Spatiality of Politics,* Macmillan Education,2020.
- Pathak, C. R. 2003: Spatial Structure and Processes of Development in India. Regional Science Assoc., Kolkata.
- Bose D. M., S. N. Sen and B. V. Subbarayappa ed. (1971) *A Concise History of Science in India,* Indian National Science Academy, New Delhi.
- Chandra, Bipan, Amales Tripathi & Barun De (1972), *Freedom Struggle*, National Book Trust, New Delhi.
- *The Cultural Heritage of India Series,* 8 Volumes (2002), Ramakrishna Mission Institute, Calcutta.
- Stuart H. Blackburn, "The Folk Hero and Class Interests in Tamil Heroic Ballads", Asian Folklore Studies, Vol. 37, No. 1 (1978), pp. 131-149.
- Beatrix Hauser, "From Oral Tradition to "Folk Art": Reevaluating Bengali Scroll Paintings", in Asian Folklore Studies, Vol. 61, No. 1 (2002), pp. 105-122.
- Singh, Y. (1968). Caste and Class : Some Aspects of Continuity and Change. Sociological Bulletin, 17(2), 165–186. https://doi.org/10.1177/0038022919680205
  Singh, Y. (1986). Modernization of Indian Tradition: A Systemic Study of Social Change. India: Rawat Publications
- Thapar, Romila. *Indian Cultures as Heritage: Contemporary Pasts*. London, Seagull Books, 2021

Reference Books

- Tiwari, R.C. (2007) Geography of India. Prayag Pustak Bhawan, Allahabad 12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

- Husain, S. Abid. (2003). *The National Culture of India*, National Book Trust, New Delhi.
- Kapoor, Kapil and Avadesh Kumar Singh ed. (2005), *Indian Knowledge Systems*, 2 Volumes, DK Printworld, New Delhi.
- Mohanta, Basant Kumar and Vipin Kumar Singh ed. (2012), Traditional *Knowledge System and Technology in India,* Pratibha Prakashan
- Komal Kothari, “Myths, Tales and Folklore: Exploring the Substratum of Cinema” pdf .
- Robinson, R. (2004). Sociology of Religion in India. India: SAGE Publications.
- Srinivas, M. N. (2000). Caste: Its 20Th Century Avatar. India: Penguin Books Limited.
- Jamil, G. (2021). Women in Social Change. SAGE Publishing India.
- Bhasin, K. (2000). Understanding Gender.
- Venkataraghavan Subha Srinivasan. *The Origin Story of India’s States*. Penguin Random House India Private Limited, 25 Oct. 2021.
- J Sai Deepak. *India That Is Bharat : Coloniality, Civilisation, Constitution*. New Delhi, Bloomsbury, 2021.

Evaluation Method

Marks Distribution	Assessment			ESE MARKS	TOTAL MARKS
	CAT I & CAT II	Report	Attendance		
	70	20	10	-	100

***** Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	**MATHEMATICS**	Programme: **B.Sc. Mathematics**						
Semester	**Second**	Course Category Code: **VAC**			End Semester Exam Type: **LE**			
Course Code	**A23VAC202C**	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	**ENVIRONMENTAL STUDIES**	**2**	**0**	**0**	**2**	**100**	**0**	**100**

Prerequisite	Basic knowledge of Biology, Physics, Chemistry, Meteorology related basic socio -culture concepts, factorsrelate to nature or environment	
Course Objectives	To know the structure and function of an ecosystem.	**CO1**
	To imbibe an aesthetic value with respect to biodiversity, understand the threats and its conservation and appreciate the concept of interdependence.	**CO2**
	To know the causes of types of pollution and disaster management.	**CO3**
	To observe and discover the surrounding environment through field work.	**CO4**
	To know the structure and function of an ecosystem.	**C05**

Course Outcomes	***On completion of the course, the students will be able to***	BT Mapping (Highest Level)
	CO1 Understand about the various resources	**K3**
	CO2 Learn about the biodiversity	**K3**
	CO3 Learn the different types of pollution and to prevent the pollution	**K3**
	CO4 Know about the pollution Act	**K3**
	CO5 Observe various environmental issues in surroundings	**K3**

UNIT-I	**ENVIRONMENTAL SCIENCES: NATURAL RESOURCES**	Periods: 06
Environmental Sciences - Relevance - Significance - Public awareness - Forest resources – Water resources –Mineral resources - Food resources - conflicts over resource sharing - Exploitation – Land use pattern - Environmental impact - fertilizer - Pesticide Problems - case studies.		**CO1**
UNIT-II	**ECOSYSTEM, BIODIVERSITY AND ITS CONSERVATION**	Periods: 06
Ecosystem - concept - structure and function - producers, consumers and decomposers - Food chain - Food web - Ecological pyramids - Energy flow - Forest, Grassland, desert and aquatic ecosystem.Biodiversity - Definition - genetic, species and ecosystem diversity - Values and uses of biodiversity -biodiversity at global, national (India) andlocal levels - Hotspots, threats to biodiversity - conservationof biodiversity – Insitu & Exsitu		**CO2**
UNIT-III	**ENVIRONMENTAL POLLUTION AND MANAGE**	Periods: 06
Environmental Pollution - Causes - Effects and control measures of Air, Water, Marine, soil, solid waste,Thermal,Nuclear pollution and Disaster Management - Floods, Earth quake, Cyclone and Landslides. Role of individuals inprevention of pollution - pollution case studies		**CO3**
UNIT-IV	**SOCIAL ISSUES - HUMAN POPULATION**	Periods: 06
Urban issues - Energy - water conservation - Environmental Ethics - Global warming – Resettlement and Rehabilitation issues - Environmental legislations - Environmental production Act. 1986 - Air, Water,Wildlife and forest conservation Act - Population growth and Explosion - Human rights and ValueEducation - Environmental Health - HIV/AIDS - Role of IT in Environment and Human Health - Womenand child welfare -Public awareness -Case studies.		**CO4**
UNIT-V	**NATIONAL INTEGRATION AND COMMUNAL HARMONY**	**Periods: 06**
The roleof Youth organizations in national integration, NGOs, Diversity of Indian Nation, Importance of National integration communal harmony for the development of nation,Indian Constitution, Building Ethical human Relationships, Universal Human Values, Harmony of self and Harmony of nation.		**CO5**

Lecture Periods: -	**Tutorial Periods: -**	**Practical Periods: 30**	**Total Periods: 30**

Text Books

1. Joseph, Siby K and Mahodaya Bharat (Ed.), (2007), Essays on Conflict Resolution, Institute of Gandhian Studies, Wardha

2. Barman Prateeti and Goswami Triveni (Ed.), (2009), Document on Peace Education, Akansha Publishing House, New Delhi

3. Sharma Anand, (2007), Gandhian Way, Academic Foundation, New Delhi Myers G.Davi (2007). Social Psychology. New Delhi: Tata Mc.Graw Hill.

4.Taylor E.Shelly et.al (2006), Social Psychology (12th Edn.), New Delhi, Pearson Prentice Hall Singh.

Reference Books

1.Madhu (2003), Understanding Life Skills, background paper prepared for education for all: The leap to equality, Government of India report, New Delhi.

2.Sandhan (2005), Life Skilss Education, Training Module, Society for education and development, Jaipur. Radakrishnan Nair and SunithaRajan (2012), Life Skill Education: Evidences form the field, RGNIYD publication, Sriperumbudur

3.National Service Scheme Manual (Revised) , Government of India, Ministry of Youth Affairs and Sports, New Delhi.

4.National Service Scheme in India: A Case study of Karnataka, M. B. Dishad, Trust Publications, 2001

Web References

1. http://www.thebetterindia.com/140/national-service-scheme-nss/

2.http://en.wikipedia.org/wiki/national-service-scheme 19=http://nss.nic.in/adminstruct

3.http://nss.nic.in/propexpan

4.http://nss.nic. in

5.http://socialworknss.org/about.html

* TE – Theory Exam, LE – Lab Exam

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)				End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Assignment*	Attendance		
Marks	70		20	10	0	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

A23MAC202D	CERTIFICATION COURSES	L	T	P	C	Hrs
		0	**0**	4	0	**40**

Students shall choose an international certification course offered by the reputed organizations like Google, Microsoft, Information Technology Specialist, Project Management Institute, Adobe, CISCO Networking Academy, AWS Academy, Tally and Autodesk, Eplan, etc. The duration of the course is 40 hours specified in the curriculum, which will be offered through Centre of Excellence.

Pass /Fail will be determined on the basis of participation, attendance, performance and completion of the course.

If a candidate Fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.