Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

SEMESTER I

S.No	CATEGORY	SUB. CODE	SUBJECT	L	T	P	C
THEORY							
1.	HS	BAL101	Tamil – I	3	2	0	4
		BAL102	French – I	3	2	0	4
		BAL103	Hindi – I	3	2	0	4
2.	HS	BEH101	English – I	3	2	0	4
3.	MC	BMA105	Algebra-1	3	1	0	4
4.	MC	BMA106	Trigonometry	3	1	0	4
5.	NMC	BMA107	Mathematical Statistics-1	5	2	0	3
PRACTICAL							
6.	NMC	BMA1L1	Mathematical Statistics Practical-	0	0	4	2
7.			Library	0	0	1	-
Total Contact Hours: 30						**Total Credits: 21**	

II SEMESTER

S. No.	CATEGORY	SUB. CODE	SUBJECT	L	T	P	C
THEORY							
1.	HS	BAL201	Tamil –II	2	2	0	3
		BAL202	French-II				
		BAL203	Hindi-II				
2.	HS	BEH201	English-II	2	2	0	3
3.	MC	BMA205	Calculus	3	1	0	4
4.	MC	BMA206	Analytical geometry	3	1	0	4
5.	NMC	BSC203	Mathematical Statistics-2	4	0	0	3
6.	HS	BCI204	Environmental Studies	2	0	0	2
7.	EEC	BBC206	Value Education	2	0	0	3
PRACTICAL							
8.	**NMC**	BMA2L1	Mathematical Statistics practical-2	0	0	4	2
Total Contact Hours: 28						**Total Credits: 24**	

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III SEMESTER

S. No.	CATEGORY	SUB. CODE	SUBJECT	L	T	P	C
THEORY							
1.	HS	BAL301	Tamil –III	3	2	0	4
		BAL302	French-III				
		BAL303	Hindi-III				
2.	HS	BEH301	English-III	3	2	0	4
3.	MC	BMA305	Differential Equation and Laplace transforms	3	1	0	4
4.	MC	BMA306	Numerical Analysis	3	1	0	4
5.	NMC	BPS302	Physics -1	3	1	0	4
6.	NME	BAL001	Non Major Elective I – for those who studied Tamil under Part I a) Basic Tamil for other language students	2	0	0	2
		BAL002	b) Special Tamil for those who studied Tamil upto 10th +2 but opt for other languages in degree programme.				
PRACTICAL							
8.	**NMC**	BPS3L2	**Physics Practical-1**	0	0	4	2
9			Library	1			
Total Contact Hours:29				**Total Credits: 24**			

IV SEMESTER

S. No.	CATEGORY	SUB. CODE	SUBJECT	L	T	P	C
THEORY							
1.	HS	BAL401	Tamil –IV	2	2	0	3
		BAL402	French-IV				
		BAL403	Hindi-IV				
2.	HS	BEH401	English-IV	2	2	0	3
3.	MC	BMA405	Vector calculus, Fourier series and Fourier Transforms	3	1	0	4
4.	MC	BMA406	Fluid Dynamics	3	1	0	4
5.	NMC	BPS402	Physics -2	4	0	0	4

6.	NME	BAL003	Non Major Elective II – for those who studied Tamil under Part I Basic Tamil for other language students	2	0	0	2
		BAL004	Special Tamil for those who studied Tamil upto 10th +2 but opt for other languages in degree programme.				
7.	SBE	BMA4E3	Skill Based Elective I	2	0	0	2
PRACTICAL							
8.	NMC	BPS 4L2	Physics Practical-2	0	0	4	2
Total Contact Hours: 28						**Total Credits: 24**	

SEMESTER V

S. No.	**CATEGORY**	**SUB. CODE**	**SUBJECT**	**L**	**T**	**P**	**C**
THEORY							
1.	MC	BMA501	Real Analysis	3	2	0	4
2.	MC	BMA502	Algebraic Structures	3	2	0	4
3.	MC	BMA503	Operation research	3	2	0	4
4.	MC	BMA504	Unix and C programming	4	0	0	4
5	ME	BMA5E4	Major Elective 1	4	0	0	4
6.	SBE	BMA5E5	Skill Based Elective – II	2	0	0	2
7.	SBE	BMA5E6	Skill Based Elective - III	2	0	0	2
PRACTICAL							
8.	**MC**	BSC5L1	**C** programming Lab	0	0	4	2
Total Contact Hours: 31						**Total Credits:26**	

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VI SEMESTER

S. No.	CATEGORY	SUB. CODE	SUBJECT	L	T	P	C
THEORY							
1.	MC	BMA601	Complex Analysis	3	2	0	4
2.	MC	BMA602	Graph theory	3	2	0	4
3.	ME	BSC6E7	Major Elective – II :	3	1	0	4
4.	ME	BSC6E8	Major Elective – III :	3	1	0	4
PRACTICAL							
5.	MC	BMA6P1	Mini project	0	0	14	6
6.	EEC	BMA6V11	Extension Activities	**0**	**0**	**2**	**1**
Total Contact Hours: 34						**Total Credits: 23**	

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

LIST OF ELECTIVES

MAJOR ELECTVES: I

SUB CODE	SUB NAME	NO. OF PERIODS PER WEEK			C
		L	T	P	
BMA001	DISCRETE MATHEMATICS	3	1	0	4
BMA002	STATICS	3	1	0	4
BMA003	GROUP THEORY	3	1	0	4

MAJOR ELECTVES: II

Sub Code	Sub Name	No. of periods per week			C
		L	T	P	
BMA004	BIO – STATISTICS	3	1	0	4
BMA005	NUMBER THEOREY	3	1	0	4
BMA006	MODREN ALGEBRA	3	1	0	4

MAJOR ELECTVE-III

Sub Code	Sub Name	No. of periods per week			C
		L	T	P	
BMA007	MECHANICS	3	1	0	4
BMA008	SPECIAL FUNCTION	3	1	0	4
BMA009	ASTRONOMY	3	1	0	4

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NON MAJOR ELECTIVE (NME) I - BCI3E1

Sub Code	Sub Name	L	T	P	C
BAL001	Basic Tamil – I for those who studied other language under Part I	2	0	0	2
BAL002	Special Tamil – I for those who studied Tamil under Part I	2	0	0	2

NON MAJOR ELECTIVE (NME) II – BCI 4E2

Sub Code	Sub Name	L	T	P	C
BAL003	Basic Tamil – II for those who studied other language under Part I	2	0	0	2
BAL004	Special Tamil – II for those who studied Tamil under Part I	2	0	0	2

LIST OF SKILL BASED ELECTIVES (Choose any three courses – one in semester IV & two in semester V):

S.NO	Sub Code	Sub Name	L	T	P	C
1	**BBA011**	BPO Management	**1**	**0**	**2**	**2**
2	**BBE002**	Desk Top Publishing	**1**	**0**	**2**	**2**
3	**BCA001**	Computer Application	**1**	**0**	**2**	**2**
4	**BCA002**	Graphical and Web Design	**1**	**0**	**2**	**2**
5	**BCA003**	Multimedia	**1**	**0**	**2**	**2**
6	**BCA004**	Networking and Maintenance	**1**	**0**	**2**	**2**
7	**BCA006**	Web Designing	**1**	**0**	**2**	**2**
8	**BSC001**	Animation	**1**	**0**	**2**	**2**
9	**BSC002**	Computer Hardware and Networking	**1**	**0**	**2**	**2**
10	**BSC003**	Computer Programming	**1**	**0**	**2**	**2**
11	**BSC004**	Computer Technology	**1**	**0**	**2**	**2**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

SEMESTER-I

BAL101	**TAMIL – I**	**L**	**T**	**P**	**C**
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – +2 Level Tamil				
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு&தமிழ்த்துறை				

COURSE OBJECTIVES :-இருபதாம் நூற்றாண்டு இலக்கியம் மற்றும் மொழி வரலாற்றை அறியச் செய்தல்

COURSE OUTCOMES (COs)

CO1	இருபதாம் நூற்றாண்டு கவிதைஇலக்கியத்தைப் பற்றி அறிவர்
CO2	இருபதாம் நூற்றாண்டுகட்டுரைஇலக்கியத்தைப் பற்றி அறிவர்
CO3	இருபதாம் நூற்றாண்டுசிறுகதைஇலக்கியத்தைப் பற்றி அறிவர்
CO4	இக்கால இலக்கிய வரலாறுபற்றி அறிவர்
CO5	மொழி வரலாறு – செம்மொழிபற்றி அறிவர்
CO6	தற்கால இலக்கியத்தில் ஆழ்ந்த அறிவைப் பெறுவர்

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/ Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval		Academic Council Meeting

அலகு -1 இருபதாம் நூற்றாண்டு கவிதைகள் **9**

1. பாரதியார் -யாமறிந்த மொழிகளிலே 2. பாரதிதாசன்-நீங்களே சொல்லுங்கள்!
3. கண்ணதாசன் -அழுகை 4. பெருஞ்சித்திரனார்- தமிழா நீ எங்கே?
5. தமிழ் ஒளி - (I) வள்ளைப்பாட்டு (II) பட்டமரம்
6. அப்துல் ரகுமான் - கல்லின் காயம்

அலகு -2 உரைநடை (I) 4 கட்டுரைகள் **9**

1. மனிதனும் அழகும் - திரு.வி.க.2. வீட்டிற்கோர் புத்தகசாலை-அறிஞர் அண்ணா
3. பொறியியல் தமிழ் - நா. மால் முருகன்

4. தேசியமறை திருக்குறள் - வ.சுப.மாணிக்கம்

அலகு - 3 உரைநடை (II) சிறுகதை - 4 கதைகள் **9**

1. நட்சத்திரக் குழந்தைகள் - பி.எஸ்.இராமையா2. விடியுமா-கு.ப.ராசகோபாலன்
3. குருபீடம் - ஜெயகாந்தன்4. கடவுளும் கந்தசாமிப் பிள்ளையும்-புதுமைப்பித்தன்

அலகு - 4 இக்கால இலக்கிய வரலாறு **9**

1. இருபதாம் நூற்றாண்டு கவிதை இலக்கிய வரலாறு
2. இருபதாம் நூற்றாண்டு உரைநடை இலக்கிய வரலாறு
3. இருபதாம் நூற்றாண்டு சிறுகதை இலக்கிய வரலாறு

அலகு -5 மொழி வரலாறு **9**

1. தமிழ்மொழி வரலாறு 2. உலகச் செம்மொழிகளின் வரலாறு
3. தமிழுக்கும் உலகச் செம்மொழிகளுக்குமான உறவு வரலாறு

பாடநூல்

1. இருபதாம் நூற்றாண்டு கவிதை, உரைநடை, சிறுகதை(அலகு-3) பாரத் பல்கலைக்கழக வெளியிடு

பார்வை நூல்கள்

1. சு. ஆனந்தன்,"தமிழ் இலக்கிய வரலாறு", பாரி நிலையம், 2012
2. ஞானப்பிரகாசர்,"தமிழ் அமைப்புற்றவரலாறு", வியாபார ஐக்கிய சங்கம்,2012
3. ஞா.தேவநேயன்,"தமிழ் வரலாறு", பூம்புகார் பதிப்பகம், 2009
4. ஞா.தேவநேயன்,"முதல் தாய்மொழி", பூம்புகார் பதிப்பகம்,2008
5. ஞா.தேவநேயன்,"சுட்டு விளக்கம்" , பூம்புகார் பதிப்பகம்,2006

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL102	FRENCH I	L	T	P	C
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – Grade 12				
	Course Coordinator Name & Department:- Ms. Tushita Naidu K / Department De Française				

COURSE OBJECTIVES:-

To introduce students to basic principles and practice of oral and written communication.

COURSE OUTCOMES (COs)

CO1	To ***recall*** the basics of the language.
CO2	To ***analyze*** the sentence patterns and form the grammar.
CO3	To ***learn*** the basics of grammar along with its principles.
CO4	To ***remember*** the anatomy of conjugations.
CO5	To ***create*** dialogs and conversation on their own within the language & to practice oral and written skills.
CO6	To ***remember*** the necessary rules of the language

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	H						H		
	CO2	H	H								
	CO3	H	M								
	CO4	H	M								
	CO5	M	M								
	CO6	H	H								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
							✓			
4	Approval		Academic Council Meeting							

UNIT I - Vous comprenez **9**

Alphabets - French Accents - Les Nombres – Pronunciations.

UNIT II Au travail! **9**

Masculine Singular and Feminine singular - Conjugaison des verbes (present tense) - Les articles définis.

UNIT III En se detend? **9**

Conjugaison (faire-aller-venir-Vouloir-Pouvoir-Devoir

UNIT IV Racontez-moi **9**

La date et l'heure – les saisons – les couleurs

UNIT V Bon voyage! **9**

Adjectifs demonstratives - Adjectifs possessives - Les Voyages / les transport-Bon appétit!- Article
partitif - Emploi des articles - Interrogation (Forme avec inversion) - Les repas - La fête

TEXT BOOKS:

A1 ECHO- J. GIRARDET, J. PECHEURB CLE PUBLICATION.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL103	HINDI-I	L	T	P	C
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – Grade 12				
	Course Coordinator Name & Department:- Mrs Rani Selvan / Hindi				

COURSE OBJECTIVES:-

To introduce students to basic principles and practice of oral and written communication.

COURSE OUTCOMES (COs)

CO1	Remember the behavior
CO2	Understand the importance of money by story
CO3	Apply the concept of Hindi grammar
CO4	Analyze the usage of translation from English to Hindi
CO5	Evaluate the unseen passage to answer the questions
CO6	Create the knowledge in Hindi Language

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO 2**	**PSO3**
2	CO1	H	M						H		
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
							□			

4	Approval		Academic Council Meeting

UNIT I **9**

NAVEEN GADYA CHAYANIKA – 2 - Bholaram ka jeev - Mehamaan se Bhagavaan bachaaye - Numberovali Thijori –Kaffan - Gunda

UNIT II **9**

NON DETAILED TEXT: KAHANI KUNJ - Stories: 6 – 10 only

UNIT III **9**

GRAMMAR: SHABDA VICHAR ONLY - NOUN, PRONOUN, ADJECTIVE, VERB, TENSE, CASE ENDINGS - Theoretical & Applied

UNIT IV **9**

TRANSLATION - English – Hindi only - ANUVADH ABHYAS – III - 1 – 15 Lessons Only

UNIT V **9**

COMPREHENSION - 1 Passage from ANUVADH ABHYAS – III (16 – 30)

TEXT BOOKS:

UNIT 1 - Dakshina Bharat Hindi Prachar Sabha, Chennai – 600017
UNIT II - Govind Prakashan, Sadhar Bagaar, Mathura, Uttar Pradesh – 281001 - Editor: Dr V.P. Amithab
UNIT III - Vyakaran Pradeep by Ramdev - Hindi Bhavan,36, Tagor Town, Allahabad – 211002.
UNIT IV - Dakshina Bharat Hindi Prachar Sabha, Chennai – 600017.
UNIT V - Dakshina Bharat Hindi Prachar Sabha, Chennai – 600017

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BEH101	**ENGLISH I**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	4	0	0	4
	Prerequisite course – + 2 level English				
	Course Coordinator Name & Dept: Mrs. SHEEBA - English				

COURSE OBJECTIVES:- :- To use English effectively for study purpose and enable the learner to communicate appropriately in real life situation.

COURSE OUTCOMES (COs)

CO1	Remember and recall the words according to the given context.
CO2	Understand the necessity of grammar in Communication
CO3	Apply the plots and themes discussed
CO4	Analyze the various characters involved
CO5	Evaluate the characters and summarizes the prescribed literature
CO6	Create essays by evaluating the literary techniques and devices used.

Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PS O1	PSO 2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
		✓								
4	**Approval**	Academic Council Meeting								

UNIT I –POETRY **12**

Lucy Gray William Wordsworth – Author biography – Summary – Critical Analysis - Ulysses Alfred Lord Tennyson– Author biography – Summary – Critical Analysis - The Road Not Taken – Robert Frost – Author biography – Summary – Critical Analysis

UNIT II – ONE ACT PLAYS **12**

The Boy Comes Home - A.A.Milne – Author biography – Summary – Critical Analysis - The Referee - W.H.Andrews and Geoffrey Dearmer – Author biography – Summary – Critical Analysis

UNIT III- SHORT STORIES **12**

The Unicorn in the Garden – James Thurber – Author biography – Summary – Critical Analysis - The Avenger – Anton Chekov – Author biography – Summary – Critical Analysis - The Gift of the Magi - O.Henry – Author biography – Summary – Critical Analysis

UNIT IV –PROSE B **12**

Six Thinking Hats - Edward de Bono– Author biography – Summary – Critical Analysis - My Early Days Abdul Kalam – Author biography – Summary – Critical Analysis- I Have a Dream Martin Luther King– Author biography – Summary – Critical Analysis.

UNIT V – GRAMMAR **12**

Introduction to Basics of Communication Definitions, Types Listening Speaking Reading Writing

TEXT BOOKS:

1. Six Thinking Hats by Edward de Bono, Little Brown and Company, 1985
2. My Early Days by Abdul Kalam, October 7, 2013

REFERENCE BOOKS:

1. English for Communication by Board of Editors, Emerald
2. Roche Marc, "Advanced English Writing Skills: Master class for English Language, Roche Publishing ESL, 2019
3. Strings of Gold (Part- II) Edited by Prof. Jasbir Jain (MacMillan), 2007

Course Coordinator **HOD**

BMA105	**CORE- 1 – ALGEBRA-I**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. K. Ramalakshmi &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

COURSE OUTCOMES (COs)

CO1	Apply the concepts of matrices, in solving a system of linear equations
CO2	Be familiar with the theory of equations
CO3	Get exposed to the transformation of equations
CO4	State and explain Symmetric - Skew symmetric, - Hermitian - Skew Hermitian – Orthogonal and Unitary Matrices.
CO5	To explain Exponential and Logarithmic series
CO6	To explain detail about Highest Power of a Prime Number p contained in *n!*- Fermat's and Wilson's Theorem

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/ Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval		Academic Council Meeting

UNIT-I: THEORY OF EQUATIONS **12**

Polynomial Equations - Symmetric Functions of roots in terms of Coefficients - Sum of r-th powers of roots - Reciprocal Equations - Transformation of Equations.

UNIT-II: THEORY OF EQUATIONS **12**

Descarte's Rule of Signs - Approximate Solutions of Polynomials by Horner's method - Newton - Raphson method of Solution of a Cubic Polynomial.

UNIT-III: SUMMATION OF SERIES **12**

Summation of series using Binomial - Exponential and Logarithmic series (Theorems without proofs) - Approximation using Binomial & Exponential series.

UNIT-IV: MATRICES **12**

Symmetric - Skew symmetric, - Hermitian - Skew Hermitian - Orthogonal and Unitary Matrices - Cayley-Hamilton Theorem (without proof) - Eigen Values - Eigen Vectors–Similar Matrices - Diagonalisation of a Matrix.

UNIT-V: ELEMENTARY NUMBER THEORY **12**

Prime Number - Composite Number - Decomposition of a Composite Number as a Product of Primes uniquely (without proof) - Divisors of a Positive Integer - Congruence Modulo n - Euler Function (without Proof) - Highest Power of a Prime Number p contained in n!- Fermat's and Wilson's Theorems (statements only) - simple problems.

Text Books

1. T.K.Manickavachagam Pillai, T.Natarajan and K.S.Ganapathy "Algebra, Volume I & II", S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai. 2004

Reference Books

1. P.Kandaswamy, K.Thilagavathy, "Mathematics for B.Sc. Vol -I, II, III & IV", S.Chand & Company Ltd., New Delhi-55. 2004
2. S.Arumugam "Algebra", New Gamma Publishing House, Palayamkottai. 2003
3. A.Singaravelu, "Algebra and Trigonometry", Vol.-I & II", Meenakshi Agency, Chennai. 2003
4. S.Sudha, "Algebra and Trigonometry", Emerald Publishes, Chennai. 1998

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA106	CORE- 2 - TRIGONOMETRY	L	T	P	C
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Kavitha &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

COURSE OUTCOMES (COs)

CO1	Expand trigonometric functions and also find the summation of T-series
CO2	Be familiar with the Expansion of Inverse Circular Functions
CO3	Study about the Summation of Trigonometric Series: When the angles are in A.P
CO4	Get exposed to the Relation between Hyperbolic Functions - Inverse Hyperbolic Function
CO5	Get exposed Relation between Hyperbolic Functions
CO6	Study about Gregory Series

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					
4	Approval		Academic Council Meeting							

UNIT-I **12**

Expansions of cos nθ , sin nθ - Expansion of tan nθ in terms of tan θ - Expansion of tan(A+B+C+…) - Formation of Equations.

UNIT-II **12**

Powers of sines and cosines of θ in terms of functions of multiples of θ - expansions of sin θ and cos θ in a series of ascending powers of θ - Expansion of Inverse Circular Functions.

UNIT-III: Hyperbolic Functions **12**

Definition – Relation between Hyperbolic Functions - Inverse Hyperbolic Functions.

UNIT-IV **12**

Resolution into Factors - simple problems only - DeMoivre's Property on the Circle and Cote's Property on the Circle. Logarithm of complex quantities. (Problems only)

UNIT-V **12**

Summation of Trigonometric Series: When the angles are in A.P, C+iS method of summation - Method of Differences - Gregory Series - Euler Series. .

Recommended Text

1. S.Narayanan and T.K.Manickavachagam Pillai, "*Calculus",* S.Viswanathan Printers & Publishers Pvt. Ltd. Chennai. (2004)

Reference Books

1. P.Kandaswamy, K.Thilagavathy (2004), "Mathematic for B.Sc. Vol.-I, II, III & IV", S.Chand& Company Ltd., New Delhi-55.

2. P.Duraipandian and Laxmi Duraipandian (1984), "Trigonometry", Emerald Publishers, Chennai.

3. B.S.Grewal. (2002), "Higher Engineering Mathematics", Khanna Publishers. New Delhi.

4. S.L.Loney. (1982), "Plane Trigonometry Part II", Cambridge University Press, London.

5. A.Singaravelu (2003), "Algebra and Trigonometry", Vol.-I Meenakshi Agency, Chennai.

6. P.R.Vittal. (2004), "Trigonometry", Margham Publications, Chennai.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA107	ALLIED –I MATHEMATICAL STATISTICS –I	L	T	P	C
	Total Contact Hours – 45	5	2	0	3
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Kavitha &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

To enable the students to know the importance of Statistics and its applications.

COURSE OUTCOMES (COs)

CO1	Expand Measures of central tendency- Mean, Median, Mode, Geometric Mean, Harmonic Mean and Quartiles.
CO2	To explain about the theoretical concepts Probability- Axiomatic and Classical Probability
CO3	Study about the Concept of Random Variable ,Discrete and Continuous
CO4	Study about the Bivariate Probability Distribution Discrete and Continuous
CO5	Understand about the Correlation, Types of Correlation, Karl Pearson's Co-efficient of correlation, Rank Correlation
CO6	Study about Probability- Axiomatic and Classical Probability

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO 2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
						□				

4	Approval	Academic Council Meeting

UNIT – I **9**

Measures of central tendency- Mean, Median, Mode, Geometric Mean, Harmonic Mean and Quartiles. Measures of Dispersion- Quartile Deviation and Standard deviation, Measures of Skewness and Kurtosis.

UNIT – II **9**

Correlation – Definition, Types of Correlation, Karl Pearson's Co-efficient of correlation, Rank Correlation Co-efficient – Linear Regression Equation.

UNIT – III **9**

Probability- Axiomatic and Classical Probability – Simple problems. Addition and Multiplication Theorem of Probability – Bayes' theorem of Probability. Simple problems .

UNIT – IV **9**

Concept of Random Variable –Discrete and Continuous, Distribution Functions, Probability Mass Function, Probability Density Function and Mathematical Expectations.

UNIT - V **9**

Bivariate Probability Distribution - Discrete and Continuous, Marginal and Conditional Distributions, Moment Generating Function.

TEXT BOOK:

1. Gupta S.C and V.K. Kapoor, "Fundamentals of Mathematical Statistics", Sultan & Sons, New Delhi. (2013)

REFERENCE:

1. Gupta SP, "Statistical Methods", Sultan & Sons, New Delhi (1995)
2. Kapoor and Saxena, "Mathematical Statistics", Chand & Co, New Delhi.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA1L1	**ALLIED - P I MATHEMATICAL STATISTICS– Practical I**	**L**	**T**	**P**	**C**
	Total Contact Hours – 30	0	0	4	2
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Siva &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically. To enable the students to know the importance of Statistics and its applications.

COURSE OUTCOMES (COs)

CO1	Understand about the need of Statistics practical
CO2	To explain about the uses of experiments in our day today life
CO3	To give extreme practice to handle and explain thoroughly about concepts
CO4	Calculation of Arithmetic Mean, Median, Mode, Geometric Mean and Harmonic and Quartiles for raw data and grouped data.
CO5	Calculation of Karl Pearson's co-efficient of Correlation, Spearman's rank correlation.
CO6	Study about Forecasting the values-algebraic and graphical methods.

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
						□				

4	Approval	Academic Council Meeting

Experiments covering the following topics.

Formation of frequency distribution using tally marks, diagrammatic and graphical representation of data. Calculation of Arithmetic Mean, Median, Mode, Geometric Mean and Harmonic and Quartiles for raw data and grouped data.

Computation of Mean Deviation, variance, Standard Deviation, Co-efficient of Variation, Karl

Pearson's and Bowley's Co-efficient of Skewness.

Calculation of Karl Pearson's co-efficient of Correlation, Spearman's rank correlation. Construction of Regression lines, Forecasting the values-algebraic and graphical methods.

Solving problems using Bayes' theorem of probability.Finding Expected values, Probabilities, moments for univariate and bivariate probability distributions.

TEXT BOOK:

1. Gupta S.C and V.K. Kapoor, "Fundamentals of Mathematical Statistics", Sultan & Sons, New Delhi. (2013) .

REFERENCES:

1. Gupta SP, "Statistical Methods", Sultan & Sons, New Delhi (1995).
2. Kapoor and Saxena, "Mathematical Statistics", Chand & Co, New Delhi.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

SEMESTER-II

BAL201	**TAMIL – II**	**L**	**T**	**P**	**C**
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – TAMIL – I				
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு&தமிழ்த்துறை				

COURSE OBJECTIVES :- சிற்றிலக்கியம் மற்றும் சமய இலக்கியத்தை அறியச்செய்தல்

COURSE OUTCOMES (COs)

CO1	சிற்றிலக்கியமான தூது,பள்ளு ,குறவஞ்சி பற்றி அறிந்துகொள்வர்
CO2	சைவ சமயஇலக்கியம்பற்றி அறிந்துகொள்வர்
CO3	வைணவ சமயஇலக்கியம்பற்றி அறிந்துகொள்வர்
CO4	பௌத்த, இசுலாம், கிறித்துவ சமயஇலக்கியம்பற்றி அறிந்துகொள்வர்
CO5	சிற்றிலக்கியம் மற்றும் சமய இலக்கிய வரலாறுபற்றி அறிந்துகொள்வர்
CO6	சிற்றிலக்கியம் மற்றும்சமய இலக்கியம் பற்றிய தெளிவான அறிவைப் பெறுவர்

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO 3**	**PO4**	**PO5**	**PO6**	**PO 7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval		Academic Council Meeting

அலகு 1 **9**

அழகர்கிள்ளைவிடுதூது - 1 - 20

முக்கூடற்பள்ளு - நாட்டுவளம் - 21,22,25,26,35

திருக்குற்றாலக்குறவஞ்சி- குறத்திமலைவளம் கூறுதல் - 1 - 5

அலகு 2 **9**

அற்புதத்திருவந்தாதி - 1 - 5

திருஞானசம்பந்தர் - தேவாரம் - திருவெண்காட்டுப்பதிகம் - 1 - 10

மாணிக்கவாசகர் -திருவாசகம் - திருச்சாழல் - 1 - 10

அலகு 3 **9**

பெரியாழ்வார் - முதல்திருமொழி - 1 - 10
ஆண்டாள் - திருப்பாவை - - 1 - 10
தொண்டரடிப்பொடிஆழ்வார் - திருமாலை - 1 - 5

அலகு 4 **9**

ஆசியஜோதி - கருணைக்கடல்- அறவுரைகூறுதல் - 1 - 10
பராபரக்கண்ணி - குணங்குடிமஸ்தான்சாகிபு - 1 - 20
இயேசுகாவியம் - பாடுகளின்பாதை- கண்ணதாசன்

அலகு 5 **9**

சிற்றிலக்கியவரலாறு ,சமயஇலக்கியவரலாறு

பாட நூல்கள்

1. கதிர்முருகு, "அழகர்கிள்ளைவிடுதூது", சாரதாபதிப்பகம், 2011
2. சோ.கந்தசாமி"பன்னிருதிருமுறை", உலகத்தமிழாராய்ச்சிநிறுவனம், 2008
3. கண்ணதாசன், "இயேசுகாவியம்", கண்ணதாசன்பதிப்பகம், 2014

பார்வைநூல்கள்

1. கதிர்முருகு, "முக்கூடற்பள்ளுமூலமும்உரையும்", சாரதாபதிப்பகம், 2017
2. புலியூர்க்கேசிகன், "திருக்குற்றாலக்குறவஞ்சி", செண்பகாபதிப்பகம், 2010
3. தமிழமுதன், "அற்புதத்திருவந்தாதி", பாரிநிலையம், 2011
4. த.கோவேந்தன், "நாலாயிரத்திவ்யப்பிரபந்தம்உரை", சாரதாபதிப்பகம், 2015
5. கமலாமுருகன், "ஆசியஜோதிமூலமும்உரையும்", சாரதாபதிப்பகம், 2012
6. கமலாமுருகன், "பராபரக்கண்ணிமூலமும்உரையும்", சாரதாபதிப்பகம், 2013
7. சு.ஆனந்தன், "தமிழ்இலக்கியவரலாறு", பாரிநிலையம், 2018

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL202	FRENCH II	L	T	P	C
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – Grade 12				
	Course Coordinator Name & Department:- Ms. Tushita Naidu K / Department De Française				

COURSE OBJECTIVES:-

To introduce students to the complexity of the grammar and how to overcome it with simple rules.

COURSE OUTCOMES (COs)

CO1	To being able to interpret the language.
CO2	To familiarize with methodological approaches in the study of literary and cultural texts, such as close reading, socio-historical contextualization, and literary and cultural theory.
CO3	To obtain advanced proficiency in spoken and written French.
CO4	To encourage the development of skills in linguistics, translation, and comparative studies.
CO5	To remember the anatomy of conjugations in past tense.
CO6	To evaluate the given text critically and enhance communication skills.

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	H						H		
	CO2	H	H								
	CO3	H	M								
	CO4	H	M								
	CO5	M	M								
	CO6	H	H								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval		Academic Council Meeting

UNIT I -Quelle journee! 9

La Conjugaison pronominale -L'imperatif -L'expression de la quantite (peu-in peu de- quelque – etc.)

UNIT II - Qu'on est bien ici ! 9

Prepositions et adverbs de lieu - Verbs experimant un deplacement (employ des prepositions) Le lodgement/la localisation/ l'orientation/l'etat physique/le temps qu'il fait

UNIT III -En se detend? 9

L'imparfait-Emplois du passé compose et de l'imparfait-Expression de la duree-L'enchainement des idees (alors, donc, mais) /Le sens reciproque

UNIT IV- On s'appelle? **9**

Les pronoms complements direct -Les pronoms compliments indirects de personne -c'est/ il est-Imperatif des verbs avec pronoms-La fornation des mots

UNIT V Un bon conseil ! **9**

Expression du deroulement de l'action--passe recent--Present progressif-future proche-Les phrases rappotrees- La place de l'adjectif- La proposition relative finale avec -qui

TEXT BOOKS:

A1 ECHO- J. GIRARDET, J. PECHEURB CLE PUBLICATION.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL203	**HINDI-II**	**L**	**T**	**P**	**C**
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – Grade 12				
	Course Coordinator Name & Department:- Mrs Rani Selvan / Hindi				

COURSE OBJECTIVES:-

To understand and improve the skills in the Language of Hindi

COURSE OUTCOMES (COs)

CO1	Remember of Ramayana In Sabari part
CO2	Understand the historical stories
CO3	Apply the concept of translation
CO4	Analyze and develop the letter writing skills
CO5	Evaluate and develop the speaking skills
CO6	Create knowledge in letter writing and speaking skills

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M						H		
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR

4	Approval	Academic Council Meeting

UNIT I **09**

MODERN POETRY - SHABARI

UNIT II **09**

ONE ACT PLAY - EKANKI SANKALAM

UNIT III **09**

TRANSLATION - HINDI – ENGLISH ONLY

UNIT IV **09**

LETTER WRITING - Leave letter - Job Application - Ordering books - Letter to Publisher - Personal letter

UNIT V **09**

CONVERSATION - Doctor & Patient - Teacher & Student - Storekeeper & Buyer - Two Friends - Booking clerk & Passenger at Railway station – Auto rickshaw driver and passenger.

TEXT BOOKS:

By Naresh Mehtha,Veerendra Kumar Mishra

REFERENCE BOOKS:

UNIT 1 – Publisheres - Lokbharathi Prakashan ,1 Floor, Duebari Building,Mahathma Gandhi Marg, Allahabad – 1.

UNIT II – Publishers – Vani Prakasam, New Delhi-110002

UNIT III – Publishers – Dakshin Bharath Hindi Prachar Sabha, Chennai- 17

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BEH201	ENGLISH II	L	T	P	C
	Total Contact Hours – 60	4	0	0	4
	Prerequisite course – + 2 level English				
	Course Coordinator Name & Dept.: Mr.S.KUMARESAN - English				

COURSE OBJECTIVES:- To have a better understanding of the English language skills and its implementation it in day to day life activities.

COURSE OUTCOMES (COs)

CO1	Remember and recall the concepts of English language
CO2	Understand the necessity of grammar in Communication
CO3	Apply the plots and themes discussed
CO4	Analyze the various characters involved
CO5	Evaluate the characters and summarize the prescribed literature
CO6	Create essays by evaluating the literary techniques and devices used.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	H	L								
	CO5	H	L								
	CO6	H	L								

3 Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
	✓								

4	**Approval**	Academic Council Meeting

UNIT 1: PROSE **12**

The Refugee – K.A. Abbas – Author biography – Summary – Critical Analysis.- The Lion and the Lamb – Leonard Clark – Author biography – Summary – Critical Analysis.

UNIT 2: POEMS **12**

1. The Solitary Reaper – William Wordsworth – Author biography – Summary – Critical Analysis.- Gift – Alice Walker – Author biography – Summary – Critical Analysis.

UNIT 3: SHORT STORIES **12**

The Fortune-Teller – Karel Capek – Author biography – Summary – Critical Analysis - The Postmaster – Rabindranath Tagore – Author biography – Summary – Critical Analysis.

UNIT 4: ONE-ACT PLAYS **12**

The Death Trap – Saki (H.H. Munro) – Author biography – Summary – Critical Analysis -. The Dear Departed: A Comedy in One-Act – Stanley Houghton – Author biography – Summary – Critical Analysis.

UNIT 5: COMMUNICATIVE GRAMMAR **12**

Seeking and giving information – statements and questions 2. Being informal – phrasal verbs 3. Expressing ability, possibility, etc – Modals and other devices

TEXT BOOKS:

1. The Death Trap by Saki, The Novels and Plays of Saki, 2001
2. Pooja Khanna, "English Communication", S.CHAND Publishing, 2016
3. Rabindranath Tagore, "The Postmaster", Penguin India, 2000

REFERENCE BOOKS:

1. K.A.Abbas Suresh Kohli, "An Evening in Calcutta", HarperCollins, 2015
2. Stanley Houghton, "Five one act plays", Alpha Edition, 2019
3. Edited Prof. Jasbir Jain, "Strings of Gold (Part- II)", MacMillan, 2016

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA205	CORE- 3 – CALCULUS	L	T	P	C
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. K. Ramalakshmi &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

COURSE OUTCOMES (COs)

CO1	Solve problems using expansion of functions
CO2	Apply integral calculus in solving problems
CO3	Have a clear understanding of analytical geometry
CO4	Have a thorough knowledge of conics
CO5	To study the Maxima and minima of functions of 2 variables
CO6	To understand Double integration - Double integration in polar coordinates

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO 7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			
3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR	
					✓						
4	Approval		Academic Council Meeting								

Unit I **12**

Introduction to differentiation - Successive differentiation - n^{th} derivative – Leibnitz formula for nth derivative of a product – Partial differentiation – total differential Coefficient– Homogeneous functions – Euler's theorem.

Unit II **12**

Maxima and minima of functions of 2 variables – Lagrange's method of undetermined multipliers – simple problems.

Unit III **12**

Introduction to integration - Methods of integration – Integration by parts - Bernoulli's formula. Properties of definite integrals-reduction formulae for standard integrals.

Unit IV **12**

Double integration - Double integration in polar coordinates – Change of order of integration Triple integration in Cartesian coordinates – Areas as double integral – Volume as triple integral.

Unit V **12**

Areas in polar coordinates - Length of the curve (Cartesian and polar coordinates) – Area of surface of revolution (Cartesian and polar coordinates).

Text Book(s)

1) H. Jeromeskeisler "Elementary Calculus: An Infinitesimal Approach", Prindle Weber & Schmidt, revised Edition December, 2013. (Unit II).
2) S.Narayanan, T.K. Manickavachagam Pillai, "Calculus", S.Viswanathan Publications Pvt. Ltd, 1997). (Unit - I, III, IV)
3) Dr.S. Sudha, "Calculus", Emerald Publishers, 1998. (Unit V)

References:

1. P. Kandasamy and Thilagavathy, "Mathematics", Volume 1 S. Chand, New Delhi, 2004.
2. Thomas and Finney, "Calculus", Pearson Education, 9th Edition, 2006.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA206	CORE- 4 - ANALYTICAL GEOMETRY	L	T	P	C
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Kavitha &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

COURSE OUTCOMES (COs)

CO1	To learn about analytical geometry two dimensional in polar coordinates.
CO2	Study coplanarity of straight-line-shortest distance
CO3	To have knowledge about sphere, cone and cylinder
CO4	To understand about straight lines in three dimensional.
CO5	To learn Standard equation of sphere and equation of S.D between two lines-simple problems.
CO6	Be familiar with conicoides

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO 7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT I – CONICS **12**

Polar coordinates equation of a conic – directrix - chord tangent-normal- simple problems - only in deriving equation of a conic.

UNIT II – STRAIGHT LINES **12**

Straight lines - coplanarity of straight-line-shortest distance (S.D) and equation of S.D between two lines-simple problems.

UNIT III – SPHERE **12**

Standard equation of sphere-results based on the properties of a sphere-tangent plane to a sphere-equation of a circle.

UNIT IV – CONE AND CYLINDER **12**

Cone whose vertex is at the origin- envelope cone of a sphere- right circular cone-equation of a cylinder-right circular cylinder.

UNIT V – CONICOIDES **12**

Nature of a conicoid - standard equation of central conicoid –enveloping cone tangent plane-condition for tangency –director Sphere- director plane

TEXT BOOKS

1. Durai Pandian.P, "Text book of Analytical Geometry-2 Dimensional", Asia Publishing House, 1968.

2. N.P. Bali, "Solid Geometry", Laxmi Publications (P) Ltd, 2005.

REFERENCES

1. S.Narayanan, T.K.Manickavasgam Pillai, "Calculus – I & II", Viswanathan Publications, 2004.

2. M.L. Khanna, "Solid Geometry", Jai Prakashan Nath & Co Publishers, Meerut, 2008.

3. P.R.Vittal, "Coordinate Geometry", Margham Publishers, 2003.

4. G.B. Thomas & R.L. Finney, "Calculus & Analytic Geometry", Addison Wesley, Mass (Indian Print), 1998.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BSC203	ALLIED - II MATHEMATICAL STATISTICS–II	L	T	P	C
	Total Contact Hours – 45	4	0	0	3
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. R. Ishwariya &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically. To enable the students to know the importance of Statistics and its applications.

COURSE OUTCOMES (COs)

CO1	Understand about the Discrete Distribution- Bernoulli, Binomial, Poisson and Geometric distributions-Moments and M.G.F.
CO2	To explain about the uses of experiments in our day today life
CO3	To give extreme practice to handle and explain thoroughly about concepts
CO4	Discrete Distribution- Bernoulli, Binomial, Poisson and Geometric distributions-Moments and M.G.F.
CO5	To learn Test of Significance for large Samples- Single Mean, difference between mean
CO6	To impart knowledge on the very imperative part of Statistics -Discrete and Continuous Distributions and Tests of Significance.

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/POs**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
						□				

4	Approval	Academic Council Meeting

Unit – I **9**

Discrete Distribution- Bernoulli, Binomial, Poisson and Geometric distributions-Moments and M.G.F.

Unit – II **9**

Continuous distributions – Normal, exponential and uniform distributions- Moments and M.G.F.

Unit – III **9**

Beta Distribution of First and Second kind and Gamma Distribution – Definition and Derivation of MGF and moments. 't' , F and Chi-square distributions (Derivation of the probability density function only)

Unit – IV **9**

Test of Significance for large Samples- Single Mean, difference between mean, proportion and difference between proportions and difference between two standard deviations.

Unit – V **9**

Test of significance for Small Samples- 't' test for single mean, Difference between means, Simple Correlation. Paired 't' test. Chi-square test for goodness of fit and independence of attributes and F-test.

Text Book:

1. Gupta S.C. and V.K. Kapoor, "Fundamental of Mathematical Statistics", Sultan & Sons. New Delhi.2013. Units I to III
2. Gupta S.C. and V.K. Kapoor, "Fundamental of Applied Statistics", Sultan & Sons. New Delhi.2013. Units IV and V.

Book for Reference:

1. Kapoor and Saxena, "Mathematical Statistics", Chand & Co, New Delhi
2. Gupta SP, "Statistical Methods", Sultan & Sons, New Delhi (1995)

Course Coordinator **HOD**

BMA2L1	ALLIED - P II MATHEMATICAL STATISTICS – II	L	T	P	C
	Total Contact Hours – 30	0	0	4	2
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Kavitha &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

To enable the students to know the importance of Statistics and its applications.

COURSE OUTCOMES (COs)

CO1	Understand about the need of Statistics practical
CO2	To explain about the uses of experiments in our day today life
CO3	To give extreme practice to handle and explain thoroughly about concepts
CO4	Discrete Distribution- Bernoulli, Binomial, Poisson and Geometric distributions- Moments and M.G.F.
CO5	To learn Test of Significance for large Samples- Single Mean, difference between mean
CO6	To impart knowledge on the very imperative part of Statistics -Discrete and Continuous Distributions and Tests of Significance.

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO 7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
						□				

4	Approval	Academic Council Meeting

Experiments covering the following topics:

Drawing Simple random samples, systematic samples from a finite population and finding mean and variances.

Fitting of Binomial and Poisson discrete distributions. Fitting of Normal distribution(area method only). 5

Tests of significance based on large samples for proportions, means and variance using Normal distribution. 5

Tests of significance based on small samples for single mean, two means, simple correlation, single variance, equality of two variances. 5

Chi-square test for goodness of fit and independence of attributes. 5

Analysis of Variance for CRD, RBD and LSD. 5

TEXT BOOK:

1. Gupta S.C. and V.K. Kapoor, "Fundamental of Mathematical Statistics", Sultan & Sons. New Delhi.2013. Units I to III.
2. Gupta S.C. and V.K. Kapoor, "Fundamental of Applied Statistics", Sultan & Sons. New Delhi.2013. Units IV and V.

REFERENCES:

1. Kapoor and Saxena, "Mathematical Statistics", Chand & Co, New Delhi

2. Gupta SP, "Statistical Methods", Sultan & Sons, New Delhi (1995).

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BCI204	**Environmental Sciences**	**L**	**T**	**P**	**C**
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course –Higher Secondary studies				
	Course Coordinator Name & Department:- – Dr. G. Gurumoorthy / Chemistry				

COURSE OBJECTIVES :-

To make the students learn about the science from the basic and understood all theoretical background with all concepts thoroughly to protect the habitat of biotic and abiotic ecosystem.

COURSE OUTCOMES (COs)

CO1	Remember the fundamental concept of environmental impact and importance of natural Resources
CO2	Understand about the Ecosystem, Biodiversity and its conservation
CO3	Understand the various environmental pollution, effects and prevention.
CO4	Apply the environmental legislations and environmental production act.
CO5	Apply the human rights, value education, environment and human health: women and child welfare, public awareness
CO6	Analyze the local area, local polluted site and local simple ecosystem.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	L	H			H		H		
	CO2	H	L	H			H				
	CO3	H	L	H			H				
	CO4	H	L	H			H				
	CO5	H	L	H			H				
	CO6	H	L	H			H				

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval	Academic Council Meeting

UNIT – I: INTRODUCTION TO ENVIRONMENTAL SCIENCES: NATURAL RESOURCES: 6

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.

UNIT – II: ECOSYSTEM, BIODIVERSITY AND ITS CONSERVATION: 6

Ecosystem – concept – structure and function – producers, consumers and decomposers –food chain – food web – ecological pyramids – energy flow – forest, grassland, desert and aquatic ecosystem – definition – genetic, species and ecosystem diversity – biodiversity – definition – genetic, species and ecosystem diversity – values and uses of biodiversity – biodiversity at global, national (india) and local levels – hotspots, threats to biodiversity –conservation of

biodiversity – insitu and ex-situ.

UNIT – III: ENVIRONMENTAL POLLUTION AND MANAGEMENT 6

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 land slides, role of individuals in prevention of pollution – pollution case studies.

UNIT – IV: SOCIAL ISSUES – HUMAN POPULATION: 6

Urban issues – energy – water conservation – environmental ethics – global warming – resettlement and rehabilitation issues – environmental legislations – environmental production act. 1986 – air, water, wildlife and forest B.C.A.: syllabus (CBCS) conservation act - population growth and explosion – human rights and value education – environmental health – HIV/AIDS – role of it in environment and human health – women and child welfare – public awareness – case studies.

UNIT – V: FIELD WORK: 6

Visit to a local area / local polluted site / local simple ecosystem – report submission.

Text book:

1. K. Kumarasamy, A. Alagappa Moses and M. Vesanthy, 2004, Environmental Studies, Bharathidasan University Pub, 1, Trichy.
2. Rajamannar, 2004, Environmental Studies, EVR College Pub, Trichy.
3. S. Kalavathy, (ED.) 2004, Environmental Studies, Bishop Heber College Pub., Trichy.

Reference book:

1. Rajamannar, 2004, Environmental Studies, EVR College Pub, Trichy.
2. S. Kalavathy, (ED.) 2004, Environmental Studies, Bishop Heber College Pub. Trichy.
3. G. TylerMiller, Scott Spoolman, 2018, Environmental science, 16th edition.

Course Coordinator HOD

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BBC206	**VALUE EDUCATION**	**L**	**T**	**P**	**C**
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary level				
	Course Coordinator Name & Department:- Ms. G. Vinothini, Commerce				

COURSE OBJECTIVES:-

- To enable the students to understand the Social values.
- To provide knowledge on the features for life.
- To acquire the knowledge on Human rights.
- To impart the knowledge on Environment and Ecological balance.
- To educate the knowledge on Social evils.

COURSE OUTCOMES (COs)

CO1	List out the Formation and Essential Elements of Contract.
CO2	Determine the Self esteem, duties and responsibilities of individuals, Social values
CO3	Apply to create peace and non violence and Dr. APJ Abdul Kalam's ten points for Enlightened citizenship
CO4	Determine the Environment and Ecological balance
CO5	Measure the Knowledge on Environmental conservations and enrichment
CO6	Formulate the awareness on Corruption, crime, terrorism, Alcoholism, Drug addiction, Dowry

Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO2
2	CO1	H	H	H	L	M	H	M		
	CO2	H	M	H	M	L	H	H		
	CO3	H	L	M	M	H	H	L		
	CO4	M	H	H	H	H	L	H		
	CO5	H	M	H	M	M	L	H		
	CO6	M	M	H	H	H	M	L		

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core	Core Elective	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
		✓							✓	
4	Approval	Academic Council Meeting								

UNIT I **6**

Value education: Definition- relevance to present day – concept of human values – self introspection – Self esteem- duties and responsibilities of individuals- Social values- role of

media in value building.

UNIT II **6**

Salient features for life: Truth, commitment,, honesty and integrity, forgiveness and love, empathy and ability to sacrifice, care, unity and inclusiveness, Team work- positive creative thinking.

UNIT III **6**

Human rights: Universal declaration of Human rights- human rights violation – National integration – peace and non violence – Dr. APJ Abdul Kalam's ten points for enlightened citizenship

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UNIT IV **6**

Environment and Ecological balance: Interdependent of all being – living and non living – the binding of man and nature – Environmental conservations and enrichment.

UNIT V **6**

Social evils : Corruption – cyber crime, terrorism, Alcoholism, Drug addiction, Dowry – Domestic violence – untouchability – female infanticide – atrocities against women – How to tackle them.

TEXT BOOK

1. N. Arumugam, S. Mohana, Lr. Palkani- value based education- Saras Publication, 2009
2. DN Ghose, Value Education- dominant publishers, 2005
3. M.G. Chitakra, Education and Human values, A.P.H Publishing Corporation. New Delhi

REFERENCE BOOKS

1) For Life, for the future: Reserves and Remains – UNESCO Publications.
2) Values, A Vedanta kesari presentations, Sri Ramakrishna Math, Chennai

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

SEMESTER-III

BAL301	**TAMIL – III**	**L**	**T**	**P**	**C**
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – TAMIL –II				
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு&தமிழ்த்துறை				

COURSE OBJECTIVES :- காப்பியஇலக்கியம்மற்றும்நீதிஇலக்கியத்தைஅறியச் செய்தல்

COURSE OUTCOMES (COs)

CO1	ஐம்பெரும் காப்பியங்களைபற்றி அறிவர்
CO2	பிற்கால காப்பியங்களைபற்றி அறிவர்
CO3	முக்கால நீதி இலக்கியங்களைபற்றி அறிவர்
CO4	பிற்கால நீதி இலக்கியங்களைபற்றி அறிவர்
CO5	காப்பிய மற்றும் நீதி இலக்கிய வரலாற்றைபற்றி அறிவர்
CO6	காப்பியம் மற்றும் நீதி இலக்கியங்களில் தெளிவான அறிவைப் பெறுவர்

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval	Academic Council Meeting

அலகு 1 **9**

சிலப்பதிகாரம்-இளங்கோவடிகள்- அடைக்கலக்காதை -115-148, 201-219

மணிமேகலை- சீத்தலைச்சாத்தனார் ஆபுத்திரன்திறம் அறிவித்த காதை - 1 – 115

சீவகசிந்தாமணி- திருத்தக்கத்தேவர்- குணமாலையார்இலம்பகம் - 851 - 860

அலகு 2 **9**

கம்பராமாயணம்- **கம்பர்**- அயோத்தியகாண்டம்- கங்கைப்படலம் - 10

தேம்பாவணி- வீரமாமுனிவர்- நாட்டுப்படலம் - 10

சீறாப்புராணம்-உமறுப்புலவர்--மானுக்குப்பிணைநின்றபடலம்- 1- 10

அலகு 3 **9**

திருக்குறள் - திருவள்ளுவர் - கல்வி - 1 - 10
நாலடியார் - பொருட்பால் - நட்பாராய்தல் - 1 - 10
இனியவைநாற்பது - பூதஞ்சேந்தனார் - 1 – 10

அலகு 4 **9**

மூதுரை-அவ்வையார் - 1- 10
நன்னெறி- சிவப்பிரகாசர் - 8,12,18,24,39
புதியஆத்திசூடி - பாரதியார்- 1- 25

அலகு 5 **9**

காப்பிய இலக்கியவரலாறு , நீதிஇலக்கியவரலாறு

பாட நூல்கள்

1. ந.மு.வேங்கடசாமிநாட்டார், "சிலப்பதிகாரம்", ராமையாபதிப்பகம், 2010
2. வீரமாமுனிவர், "தேம்பாவணிமூலமும்உரையும்", சாரதாபதிப்பகம், 2014
3. கலைஞர்மு.கருணாநிதி, "திருக்குறள்கலைஞர்உரை", திருமகள்நிலையம், 2010

பார்வைநூல்கள்:

1. புலியூர்க்கேசிகன், "மணிமேகலைமூலமும்உரையும்", சாரதாபதிப்பகம், 2017
2. ஆசிரியர்குழு, "சீவகசிந்தாமணிமூலமும்உரையும்", சாரதாபதிப்பகம், 2015
3. சு.ஆனந்தன், “தமிழ்இலக்கியவரலாறு", பாரிநிலையம், 2018
4. பத்மதேவன், "நாலடியார்மூலமும்உரையும்", கற்பகம்புத்தகாலயம், 2010
5. கதிர்முருகு, "நன்னெறிமூலமும்உரையும்", சாரதாபதிப்பகம், 2016
6. அ.சீனிவாசன், "பாரதியின்புதியஆத்திச்சூடி: ஒருவிளக்கவுரை" , 1999

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL302	FRENCH III	L	T	P	C
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – Grade 12				
	Course Coordinator Name & Department:- Ms. Tushita Naidu K / Department De Française				

COURSE OBJECTIVES:-

To develop the technical aspects of the language and varied grammatical nuances to interpret the subject matter.

COURSE OUTCOMES (COs)

CO1	To impart the various aspects that makeup the language.
CO2	To learn some facts, procedures, practice certain grammatical structures, and practice communicative strategies.
CO3	To learn the culture of the language natives.
CO4	To analyze the differences between the basic and advanced grammar.
CO5	To remember the interlink between the conjugations
CO6	To understand grammatical strictures.

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	H	L	M	-	M	-	H		
	CO2	H	H	L	M	-	-	-			
	CO3	H	M	H	H	-	H	-			
	CO4	H	M	M	M	-	-	-			
	CO5	M	M	M	H	-	H	-			
	CO6	H	H	H	M	-	M	-			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR

4	Approval	Academic Council Meeting

UNIT I Vivement demain! **9**

Le future- La comparaison des qualities, des quantities et des actions

UNIT II Le Tu as du boulot? **9**

Le pronom (en)-Le pronom (Y)-Expression de la condition

UNIT III -Qu'en pensez - vous? **9**

Le subjonctif (employ lie a quelques verbs)- Expression de la quantite (poids et mesure-evaluation-restriction)

UNIT IV - C'est tout un programme! **9**

Les propositions relatives introduites par (qui, que, ou)-Les adverbs (place, formation des adverbs en-ment)-
La forme ((en + participle present))

UNIT V On se retrouve ! **9**

Emploi et conjugaison des quatre temps de l'indicatif quatre temps de l'indicatif:--passe recent--Present -Passe compose-Imparfait et future

TEXT BOOKS:

A2 ECHO- J. GIRARDET, J. PECHEURB CLE PUBLICATION.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL303	HINDI III	L	T	P	C
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – Grade 12				
	Course Coordinator Name & Department:- Mrs Rani Selvan / Hindi				

COURSE OBJECTIVES:-

To understand and improve the skills in the Language of Hindi

COURSE OUTCOMES (COs)

CO1	Remember of Ramayana in Panchavati part
CO2	Understand the history of Hindi literature
CO3	Apply the concept of Hindi grammatical speech
CO4	Analyze and develop the translation skills
CO5	Evaluate and develop the unseen passage skills
CO6	Create the skills in Hindi language

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO 7	PSO1	PSO2	PSO3
2	CO1	H	M						H		
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval	Academic Council Meeting

UNIT I **09**

POETRY - PANCHAVATI

UNIT II **09**

HISTORY OF HINDI LITERATURE - Aadi Kaal and Bhakthi Kaal - general knowledge of the trends of the difference streams

UNIT III **09**

ALANKAR – Anupras – Yamak- Slesh - Vakrokthi Upama – Rupak – Drishtanth - Virodhabas.

UNIT IV **09**

TRANSLATION - HINDI – ENGLISH

UNIT V **09**

COMPREHENSION

Text Books:

By Maithilisharan Gupt, Anuvadh Abhyas – III

Reference Books:

Publisheres - Dakshin Bharath Hindi Prachar Sabha, Chennai- 17

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

	ENGLISH- III	L	T	P	C
	Total Contact Hours – 60	4	0	0	4
BEH301	Prerequisite course – + 2 level English				
	Course Coordinator Name & Dept: Mrs. B.JANUA SHERLY – English				

COURSE OBJECTIVES:- To enhance the reading, writing, listening and speaking of the English language skills.

COURSE OUTCOMES (COs)

CO1	Remember and recollect the value of LSRW skills.
CO2	Understand the competence of the four modes of language skills.
CO3	Apply the grammatical concepts and the correct usage of the English language.
CO4	Analyze their personality traits and develop interpersonal skills for a better career in life
CO5	Evaluate the knowledge and write resume official letters and reports
CO6	Create and develop their ability as critical thinkers and readers.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/ Pos	PO1	PO2	PO3	PO4	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L					H		
	CO2	H	L							
	CO3	H	L							
	CO4	H	L							
	CO5	H	L							
	CO6	H	L							

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
		✓								

4	Approval	Academic Council Meeting

UNIT 1 - LISTENING SKILLS **12**

Types of Listening (Theory / Definition) - Tips for Effective Listening -Academic Listening (Lectures) - Listening to Radio and Television

UNIT 2 - TELEPHONE SKILLS **12**

Basics of Telephone communication -How to handle calls- telephone manners -Leaving a message -Making requests -Greeting and Leave Taking over phone (etiquette) - Handling the situations especially trouble shooting Teleconference - handling Tele interviews for Call Centers

UNIT 3 - WRITING SKILLS **12**

Standard Business letter - Report writing- Email drafting and Etiquettes - Preparing Agenda and writing minutes for meetings - Making notes on Business conversations

UNIT 4 - CAREER SKILLS **12**

Applying for job -Cover letters -Resume and Effective Profiling - Interviews - Group discussions

UNIT 5 – PERSONAL SKILLS **12**

Empathy (Understanding third person's point of view) -Intrapersonal skills -Interpersonal skills- Problem solving

TEXT BOOKS:

1. Improve Your IELTS Listening and Speaking Skill by Barry Cusack, 2007.
2. Roche Marc, "Advanced English Writing Skills: Master class for English Language, Roche Publishing ESL, 2019

REFERENCE BOOKS:

1. Frederick H. Wentz, "A Workbook to Develop Skills For Employment", Create space Independent Pub,2012
2. S. P. Dhanavel, "English and Soft Skills", Orient Black Swan, First edition, 2010.
3. English for Communication by Board of Editors, Emerald

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA305	CORE-5 DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS	L	T	P	C
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Siva &Mathematics				

COURSE OBJECTIVES :-

To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understand thoroughly

COURSE OUTCOMES (COs)

CO1	Solve first order and of higher degree differential equations
CO2	Solve second order differential equations
CO3	Form PDEs by different methods
CO4	Solve differential equations of Lagrange's type and also by the method of
CO5	Multipliers
CO6	Be thorough with applications of Laplace transform, particularly solving

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT I - SOLVING ORDINARY DIFFERENTIAL EQUATIONS **12**

First order but of higher degree equations - solvable for p, solvable for x, solvable for y, Clairaut's form - simple problems.

UNITII – DIFFERENTIAL EQUATIONS WITH CONSTANT COEFFICIENTS **12**

Second Order Differential Equations with Constant Coefficients - Second Order Differential Equations with Variable Coefficients - Method of Variation of Parameters - Simple Problems.

UNIT III - FORMATION AND SOLVING PDE **12**

Formation of P.D.E by eliminating arbitrary constants and arbitrary functions; Complete Integral; Singular Integral; General Integral; the standard types f(p,q) = 0, f(x,p,q) = 0, f(y,p,q) = 0, f(z,p,q) = 0, f(x,p) = f(y,q); Clairaut's form ; Equation reducible to standard types - simple problems; Charpit's method.

UNIT IV - HOMOGENEOUS LINEAR DIFFERENTIAL EQUATIONS 12

Lagrange's Equation Pp + Qq = R; Method of multipliers; Homogeneous linear differential equation - solutions - simple problems.

UNIT V – LAPLACE TRANSFORMS 12

Laplace Transform; Inverse Laplace Transform (usual types); Convolution theorem; Applications of Laplace Transform to solution of first and second order linear differential equations (constant coefficients) and simultaneous linear differential equations - simple problems.

TEXT BOOK

1. P. Kandasamy, K. Thilagavathy, "Mathematics for B. Sc Branch – I, Volume 3", 1st Edition, S. Chand and Co.Ltd., New Delhi, 2004

REFERENCES

1. M. K. Venkataraman and S. Krishnan, "Engineering Mathematics, The National Publishing Co., 2010.
2. Dipak Chatterjee, "Integral Calculus and differential equations", TATA McGraw S Hill Publishing Company Ltd., 2000.
3. Narayanan, T.K. Manichavasagam Pillai, "Calculus, Vol. I", S. Viswanathan Printers Pvt. Limited, 2007.
4. Dr. S. Sudha, "Differential Equations & Integral Transforms", Emerald Publishers, 2002.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA306	**CORE-6 NUMERICAL ANALYSIS**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Siva &Mathematics				

COURSE OBJECTIVES :-

To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understand thoroughly

COURSE OUTCOMES (COs)

CO1	Solve equations numerically by direct and iterative methods
CO2	Be familiar with interpolation and numerical differentiation & integration
CO3	Be exposed to best approximations and spline approximations
CO4	Solve equations using predictor – corrector methods
CO5	Be thorough with elliptic, parabolic and hyperbolic equations
CO6	To solve Finite difference solution for the second order differential equation

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT – I SOLUTION OF EQUATION AND EIGEN VALUE PROBLEM 12

Methods of false position, Newton – Raphson method for single variable and simultaneous equation with two variables, solutions of a linear system by Gaussian, Gauss – Jordan, inverse of a matrix by Gauss – Jordan method, Eigen value of a matrix by power and Jacobi method.

UNIT – II INTERPOLATION AND APPROXIMATION 12

Interpolation with Newton forward and backward differences, Newton's divided differences, Lagrange's polynomial, central difference-Gauss Forward and Backward formula and Bessel's formula.

UNIT – III NUMERICAL DIFFERENTATION AND INTEGRATION 12

Numerical differentiation upto second order based on NFF and NBF, numerical integration by Trapezoidal and Simpson's (both $1/3^{rd}$ and $3/8^{th}$) rules, Weddles's Rule.

UNIT – IV INITIAL VALUE PROBLEMS FOR ODEs 12

Single step methods – Tailor series, Euler and modified Euler methods, Runge – Kutta method of 4^{th} order and 2nd order differential equations - Multistep methods – Milne and Adam's – Bashforth predictor and corrector methods.

UNIT – V BOUNDRY VALUE PROBLEMS FOR ODEs 12

Finite difference solution for the second order differential equation, finite difference solutions for one dimensional heat equation (both implicit and explicit) one dimensional wave equation.

TEST BOOKS:

1. Grewal, B.S. "Higher Engineering Mathematics (36^{th} edition)" Khanna Publication Delhi 2001.

REFERENCE BOOKS:

1. Jain K.K. Iyengar, S.R.K and Jain, R.K. Numerical Methods for Scientific and Engineering Computation 3^{rd} edition, New Age International Publications and Co. 1993.
2. Sastry SS. "Introductory Methods of Numerical Analysis" PHI. 2005.
3. Venkatraman.MK "Numerical Methods", NPC Chennai.
4. Dixit JB."Numerical Methods" University Science Press, New Delhi

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

		L	T	P	C
BPS302	**ALLIED PHYSICS PAPER – I**				
	Total Contact Hours – 60	5	0	0	4
	Prerequisite course – Science / Mathematics Studied in Higher Secondary Studies				
	Course Coordinator Name & Department:- Dr S. Anandhi / Physics				

COURSE OBJECTIVES:- To enhance the fundamental knowledge in Basic concepts of physics To understand the concepts of Electrical and magnetic properties and study about various laws, circuits and analysis of different techniques

COURSE OUTCOMES (COs)

CO1	Remembering the basics of stress, strain, elastic constant, surface tension and viscosity
CO2	To learn the oscillation of time period using beam and microscope
CO3	To learn the Law of thermodynamic and adiabatic process
CO4	Remembering Faradays law and thermoelectric effects and Analyze the different types of induction coils
CO5	Evaluate the problems of electromagnetic circuits
CO6	Understand the diffraction, grating, telescope and microscope and their applications

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
2	CO1	H	M	M		H				
	CO2			L		H				
	CO3	L	L	M	H	H			H	
	CO4	H		H		M				
	CO5	M	H	M		L				
	CO6	H	H	H	M					

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
									□	
4	Approval	47th Academic Council Meeting								

UNIT I - SIMPLE HARMONIC MOTION AND CIRCULAR MOTION 12

Composition of two Simple harmonic motions along a line and at right angles - Lissajous figures. Uniform circular motion - Acceleration of a particle in a circle - centripetal and centrifugal forces - centrifuge - motion of a Bicycle and a car around a circle - Banking on

curved tracks.

UNIT II- PROPERTIES OF MATTER 12

Elasticity: Elastic constants - Bending of beams - young's modulus by nonuniform bending - energy stored in a Stretched wire - torsion in a wire - determination of rigidity modulus by torsional pendulum - Static torsion.

Viscosity: Coefficient of viscosity - Poissuelle's formula - Comparison of viscosities - burette method - Stoke's law - Terminal velocity - viscosity of highly viscous liquids - lubrication. Surface tension: Molecular theory of surface tension - Excess pressure inside a drop and bubble - surface tension by drop weight method - interfacial surface tension.

UNIT III - HEAT AND THERMODYNAMICS 12

Kinetic theory of gases - Vanderwaal's equation of state - Derivation of critical constants - Low temperature - Joule-Kelvin effect - Theory and applications - Liquefaction of gases - Linde's process - adiabatic demagnetization - laws of thermodynamics - entropy - change of entropy in reversible and irreversible processes.

SOUND Transverse vibration of a stretched string - Expression for the velocity of transverse waves - laws of transverse vibrations - A.C. Frequency measurement using sonometer - velocity of sound in a gas - Ultrasonics - production and uses.

UNIT IV- ELECTRICITY AND MAGNETISM 12

Capacitor - energy of charged capacitors - Loss of energy due to sharing of charges - potentiometer - internal resistance of a cell and thermo emf measurement - Magnetic Field due to a current carrying conductor - Biot-Savart's law - field along the axis of a coil - force in a conductor carrying current in a magnetic field - Ballistic galvanometer - Circuit control and protective devices - switch - its types - fuses - circuit breaker - Relays.

UNIT V - GEOMETRICAL OPTICS 9

Refraction - Normal refraction - Refractive index by microscope - by air cell - refraction at grazing incidence - grazing emergence in prisms - combination of two prisms to produce dispersion without deviation and deviation without dispersion - defects of images - coma, Distortion - Spherical and chromatic aberration in lenses.

BOOKS FOR STUDY AND REFERENCE

1. Allied Physics by Dr.Dhanalakshmi Dr.Sabesan
2. Allied Physics by Kamalakkannan, Jayaraman.
3. Heat and thermodynamics by J.B. Rajam
4. Elements of properties of matter by Brij Lal and Subramanian
5. Mechanics by Narayanamoothy and others
6. Applied Electronics by R.S.Sedha.

Course Coordinator HOD

BAL001	**BASIC TAMIL – I**	**L**	**T**	**P**	**C**
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – +2 Level Tamil				
	Course Coordinator Name & Department :- ஸ்ரீதேவி&தமிழ்த்துறை				

COURSE OBJECTIVES :-

தமிழ்மொழியின்அடிப்படைக்கூறுகள்பற்றிஅறியச்செய்தல்

COURSE OUTCOMES (COs)

CO1	தமிழ் எழுத்துக்களை அறிவர்
CO2	தமிழ் எழுத்துக்களில் உள்ள வேறுபாடுகளை அறிவர்
CO3	சொல்லமைப்பு பற்றிஅறிவர்
CO4	சொற்களை உருவாக்கும் அறிவைப்பெறுவர்
CO5	சொற்களை தொடராக மாற்றும் திறனைப்பெறுவர்
CO6	எழுத்துக்கள், சொற்கள், தொடர்கள் பற்றி தெளிவான அறிவைப்பெறுவர்

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	M	H						M	H	M
	CO2	M	H								
	CO3	M	H								
	CO4	M	H								
	CO5	M	H								
	CO6	M	H								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
							✓			

4	Approval	Academic Council Meeting

அலகு –1 **9**

தமிழ் எழுத்து அறிமுகம் - உயிரெழுத்து - மெய்யெழுத்து - பெயர், முறை , வடிவம், ஒலி அளவு (மாத்திரை) - சுட்டு வினா எழுத்துக்கள் - எழுத்துக்களை கண்டறியும் பயிற்சி

அலகு – 2 **12**

உயிர்மெய் எழுத்துக்கள் - எண்ணிக்கை, பெயர், முறை , வடிவம், ஒலி அளவு (மாத்திரை) - எழுத்துக்களை அகரவரிசைப்படுத்துதல் - எழுத்து வேறுபாடு அறியும் பயிற்சி

அலகு – 3 **12**

சொல்லமைப்பு - ஒரேழுத்துச் சொற்கள், பல எழுத்துச் சொற்கள் - சொல்வகை - பெயர் வினை - சொற்பொருள் வேறுபாடு அறிதல் - சொற்களை உருவாக்கும் பயிற்சி

அலகு – 4 **12**

தொடர் அமைப்பு - சொற்கள் தொடராக அமையும் முறை - தொடர் வேறுபாடு - செய்தித் தொடர், வினாத் தொடர், உணர்ச்சித் தொடர், ஏவல் தொடர்- சொற்களை தொடரில் பயன்படுத்தும் பயிற்சி

பாட நூல்கள்

1. ஆறுமுக நாவலர்,“தமிழ் இலக்கணம்”, பாரி நிலையம், 2012
2. கழகப்புலவர்குழுவினர்,“நன்னூல்–எழுத்ததிகாரம்”,கழக வெளியீடு, 1996
3. கழகப்புலவர்குழுவினர்,“நன்னூல்–சொல்லதிகாரம்”, கழக வெளியீடு, 1996.

பார்வை நூல்கள்

1. பவணந்திமுனிவர், "நன்னூல் -எழுத்ததிகாரம்", முல்லை நிலையம், 1994
2. சோம. இளவரசு,"நன்னூல்சொல்லதிகாரம்", : மெய்யப்பன் பதிப்பகம், 2012
3. கூழங்கைத்தம்பிரான்,“நன்னூல்”,உலகத்தமிழாராய்ச்சி நிறுவனம், 1998

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL002	**SPECIAL TAMIL – I**	**L**	**T**	**P**	**C**
	Total Contact Hours –	2	0	0	2
	Prerequisite course – Tamil Under Part 1				
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு & தமிழ்த்துறை				

COURSE OBJECTIVES :- பண்டைத்தமிழரின் நாகரிகமும் பண்பாடும் பற்றி அறியச்செய்தல்.

COURSE OUTCOMES (COs)

CO1	தமிழரின் அரசியல், தொழில், சமூக அமைப்புபற்றி அறிவர்
CO2	தமிழர் திருமணமுறை, குடும்ப வாழ்வு பற்றி அறிவர்
CO3	தமிழரின் உணவு, உடை, உறைவிடம் பற்றி அறிவர்
CO4	தமிழரின் கல்வி, வானியல், விளையாட்டு, மகளிர், விழாக்கள் பற்றி அறிவர்
CO5	சங்ககால மருத்துவம், கட்டடக்கலைப்பற்றி அறிவர்
CO6	சங்ககால தமிழரின் நாகரிகம் பண்பாடு பற்றி தெளிவான அறிவைப்அறிவர்.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	M			H				H	M	M
	CO2	M			H						
	CO3	M			H						
	CO4	M			H						
	CO5	M			H						
	CO6	M			H						

3	Category	Humanities & Social Studies	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
							✓			

4	Approval	Academic Council Meeting

அலகு 1 **6**

நாகரிகமும் பண்பாடும் –சங்க காலத்து அரசியல் நிலை – சங்ககாலத்தொழிற் பிரிவினரும் சமூக அமைப்பும்.

அலகு 2 **6**

பண்டைத்தமிழர் திருமணமுறை ,நல்லறம் – குடும்ப வாழ்வு பற்றிய தமிழர் கொள்கை – பண்டையத்தமிழரின் உணவு, உடை, உறையுள்

அலகு 3 **6**

பண்டைத்தமிழரின் கல்வி நிலை – பண்டைத்தமிழரின் வானியல் அறிவு -பண்டைத்தமிழரின் விளையாட்டும் பொழுது போக்கும்

அலகு 4 **6**

மகளிர் நிலை - சங்கத் தமிழரின் சமய வாழ்வு - சங்ககால விழாக்கள்

அலகு 5 **6**

இந்திய நாகரீகத்தில் தமிழ்ப் பண்பாட்டுக்கூறுகள் - மருத்துவக் கலை - தமிழகக் கோயில் கட்டிடக்கலை வளர்ச்சி

பாடநூல்கள்

1. அ.தட்சிணாமூர்த்தி, "தமிழர் நாகரிகமும் பண்பாடும்", ஐந்திணைப்பதிப்பகம், 2010
2.பாவாணர், "பண்டைத்தமிழர் நாகரிகமும் பண்பாடும்", பூம்புகார் பதிப்பகம், 2012.
3கே.கே.பிள்ளை, "தமிழகவரலாறுமக்களும்பண்பாடும்", மணிவாசகர் பதிப்பகம், 2012

பார்வைநூல்கள்

1. நா. வானமாமலை, “தமிழர் பண்பாடும் தத்துவமும்”, அலைகள் வெளியீட்டகம், 2011
2. பேரின்பன், “தமிழர் வரலாறு: சில கேள்விகளும் தேடல்களும்”, அலைகள் வெளியீட்டகம், 2011
3. மா. இராசமாணிக்கனார், “தமிழக வரலாறும் தமிழர் பண்பாடும்”, செண்பகா பதிப்பகம், 2012

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BPS3L2	**PHYSICS PRACTICAL I**	L	T	P	C
	Total contact Hours-30	0	0	4	2
	Prerequisite- Science / Mathematics Studied in Higher Secondary Studies				
	Course Designed by-Department of Physics				

COURSE OBJECTIVES:-

To gain the practical knowledge of measuring tools, bending of beams, time period of pendulum and surface tension of different liquids

COURSE OUTCOMES (COs)

CO1	Handling of basic practical tools such verinyre, screw gauge and microscope
CO2	Developing technical skills
CO3	Understand the concept of material science.
CO4	Understand the equations with real coefficients of different modules
CO5	To gain the knowledge of instrumentation techniques
CO6	Verification of laws and concepts of physics

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
2	CO1	H	M	M		H				
	CO2			L		H				
	CO3	L	L	M	H	H				
	CO4	H		H		M			H	
	CO5	M	H	M		L				
	CO6	H	H	H	M					

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core	Core Elective	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
									□	

4	Approval	47th Academic Council Meeting

LIST OF EXPERIMENTS

1. Non-Uniform bending – Pin and Microscope.

2. Uniform bending-scale and Telescope.

3. Surface tension and Interfacial Surface tension by Drop weight Method.

4. Surface tension by Capillary rise Method.

5. Coefficient of viscosity of liquid – Variable Pressure head Method.

6. Thermal conductivity of a bad conductor – Lee's disc Method.

7. Spectrometer – Refractive index of a solid prism.

8. Spectrometer – Grating – Normal incidence.

9. Newton's Rings – 'R' determination.

10. Air wedge – Thickness of the given thin wire.

TEXT BOOKS:-

1) C.C Ouseph, G.Rangarajan- A Text Book Of Practical Physics- S. Viswanathan Publisher-Part I (1990)
2) C.C Ouseph, C.Rangarajan, R. Balakrishnan- A Text Book Of Practical Physics- S. Viswanathan Publisher-Part II (1996)

Books For Reference:-

1) S.L Gupta And V.Kumar- Practical Physics- Pragati Prakashan- 25th Edition (2002).

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

SEMESTER-IV

BAL401	**TAMIL – IV**	**L**	**T**	**P**	**C**
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – TAMIL –III				
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு&தமிழ்த்துறை				

COURSE OBJECTIVES :- சங்க இலக்கியத்தைப் பற்றி அறியச் செய்தல்	
COURSE OUTCOMES (COs)	
CO1	எட்டுத்தொகையில் நற்றிணை, குறுந்தொகை, கலித்தொகை இலக்கியங்களை அறிவர்
CO2	எட்டுத்தொகையில் புறநானூறு, பதிற்றுப்பத்து இலக்கியங்களை அறிவர்
CO3	பத்துப்பாட்டு இலக்கியத்தில் பொருநராற்றுப்படை, பெரும்பாணாற்றுப்படை பற்றி அறிவர்
CO4	பத்துப்பாட்டில் நெடுநல்வாடை, பட்டினப்பாலை, முல்லைப்பாட்டு பற்றி அறிவர்
CO5	எட்டுத்தொகை, பத்துப்பாட்டு இலக்கிய வரலாற்றை அறிவர்
CO6	சங்க இலக்கியத்தைப் பற்றிய உயரிய சிந்தனையைப் பெறுவர்

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval	Academic Council Meeting

அலகு 1 **9**

நற்றிணை - 10, 110, 129
குறுந்தொகை - 8, 25, 32
கலித்தொகை - 6, 37, 51

அலகு 2 **9**

புறநானூறு - 89, 109, 204
பதிற்றுப்பத்து - 42,46,49, 50

அலகு 3 **9**

பொருநராற்றுப்படை	-	151 - 213
பெரும்பாணாற்றுப்படை	-	5 - 15, 170 – 184

அலகு 4 **9**

நெடுநல்வாடை	-	1 - 25
பட்டினப்பாலை	-	106 - 158
முல்லைப்பாட்டு	-	1 - 28

அலகு 5 **9**

எட்டுத்தொகை வரலாறு- பத்துப்பாட்டு வரலாறு

பாட நூல்கள்

1. வேங்கடராமன், "நற்றிணை மூலமும் உரையும்", உ. வே. சாநூல் நிலையம், 2013.
2. புலியூர்க்கேசிகன், "குறுந்தொகை மூலமும் உரையும்", சாரதாபதிப்பகம், 2010
3. புலியூர்க்கேசிகன், "கலித்தொகைமூலமும்உரையும்", சாரதாபதிப்பகம், 2015

பார்வைநூல்கள்

1. புலியூர்க்கேசிகன், "புறநானூறு மூலமும் உரையும்", சாரதா பதிப்பகம், 2010
2. ஔவைசு.துரைசாமிப்பிள்ளை, "பதிற்றுப்பத்து உரை”, சாரதா பதிப்பகம், 2008
3. கதிர்முருகு, "பத்துப்பாட்டு மூலமும் உரையும்”, சாரதா பதிப்பகம், 2010
4. ச.வே.சுப்ரமணியம், "சங்க இலக்கியம்”, மணிவாசகர் பதிப்பகம், 2006

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL402	FRENCH IV	L	T	P	C
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – Grade 12				
	Course Coordinator Name & Department:- Ms. Tushita Naidu K / Department De Française				

COURSE OBJECTIVES:-

To introduce students to the advanced levels of the language.

COURSE OUTCOMES (COs)

CO1	To learn the culture of the language natives in advanced setup.
CO2	To understand the integral grammar structure in French.
CO3	To encourage the development of skills in linguistics
CO4	To evaluate the Oral and Written skill set
CO5	To remember the language construction
CO6	To enhance advanced fluency in language

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	H						H		
	CO2	H	H								
	CO3	H	M								
	CO4	H	M								
	CO5	M	M								
	CO6	H	H								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval	Academic Council Meeting

UNIT I Vous plaisantez! 9

Le conditionnel present -expression de l'hypothese-demandes polies-suggestions et conseils

UNIT II On s'entend bien! 9

Les constructions du discours rapport-Les constructions (faire + verbe)-et (laisser + verbe)

UNIT III A vos risqué et perils! 9

Le subjonctif Present- La construction passive pour metre en valeur l'object direct de l' action

UNIT IV C'est tout un programme! 9

Les pronom possessives -Les adjectifs et les pronoms indefinis-Les pronom demonstratifs:
Les constructions --celui+de

UNIT V C'est la fete ! **9**

Les fornes de l'appreciation : trop/ pas assez –si-Les constructions verbe+verbes

TEXT BOOKS:

A2 ECHO- J. GIRARDET, J. PECHEURB CLE PUBLICATION.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL403	**HINDI-IV**	**L**	**T**	**P**	**C**
	Total Contact Hours – 45	3	0	0	3
	Prerequisite course – Grade 12				
	Course Coordinator Name & Department:- Mrs Rani Selvan / Hindi				

COURSE OBJECTIVES:-

To understand and improve the skills in the Language of Hindi

COURSE OUTCOMES (COs)

CO1	Remember the skills of the leadership
CO2	Understand and develop the skills to overcome the mistake
CO3	Apply the concept of Hindi essay writing
CO4	Analyze and develop the translation skills
CO5	Evaluate the unseen passage skills
CO6	Create and develop the Hindi language skills

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/ Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	H						H		
	CO2	H	H								
	CO3	H	M								
	CO4	H	M								
	CO5	M	M								
	CO6	H	H								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓								

4	Approval	Academic Council Meeting

UNIT I **09**

DRAMA – Andher Nagari

UNIT II **09**

NOVEL - GABAN - Premchand

UNIT III **09**

GENERAL ESSAY

UNIT IV **09**

TRANSLATION - HINDI – ENGLISH

UNIT V **09**

COMPREHENSION

Text Books:

By Bharathendu Harischandra**,** Veerendra Kumar Mishra, Anuvadh Abhyas – III

Reference Books:

UNIT 1 - Publisher–Vani Prakashan, New Delhi – 110 002.
UNIT II – Publisher - Rajkamal Prakashan, New Delhi – 110 002
UNIT III – Aadarsh Nibnandh, Vinodh Pustak Mandir, Hospital Road, Agra -282002
UNIT IV - Dakshin Bharath Hindi Prachar Sabha, Chennai- 17
UNIT V - Dakshin Bharath Hindi Prachar Sabha, Chennai- 17

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BEH401	**ENGLISH- IV**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	4	0	0	4
	Prerequisite course – + 2 level English				
	Course Coordinator Name & Dept. :Ms.E.REKHA - English				

COURSE OBJECTIVES:- To focus on the balanced development of the English language communication skills.

COURSE OUTCOMES (COs)

CO1	Remember the basic concepts of English literature
CO2	Understand the importance of the English language.
CO3	Apply the themes and values by comprehending the given text.
CO4	Analyse the grammar and the literary texts.
CO5	Evaluate the characters and the genre prescribed.
CO6	Create comprehensive essays efficiently.

Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L								
	CO2	H	L								
	CO3	H	L								
	CO4	H	L						H		
	CO5	H	L								
	CO6	H	L								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Eng Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
		✓								

4	**Approval**	Academic Council Meeting

UNIT 1 - PROSE **12**

Lalajee – Jim Corbett – Author Biography – Plot – Theme - Summary - Critical analysis;
Face of Judas – Bonnie Chamberlin - Author Biography – Plot – Theme - Summary - Critical analysis.

UNIT 2 - POETRY **12**

Laugh and Be Merry – **John Masefield** – Author Biography - Theme – Poetic devices – Annotations - Summary – Critical analysis; **Matilda - Hilaire Belloc**- Author Biography - Theme – Poetic devices – Annotations - Summary – Critical analysis.

UNIT 3: SHORT STORIES **12**

Hunchback Sundari – **C.Raja Gopalachari** – Author Biography - Plot – Theme - Character sketch – Summary – Critical analysis; **The Eyes Are Not There** - **Ruskin Bond**- Author Biography - Plot – Theme - Character sketch – Summary – Critical analysis.

UNIT 4: ONE-ACT PLAYS **12**

Macbeth Soliloquy – **Out, Out, Brief Candle - Shakespeare** – Author Biography - Plot – Theme - Character sketch – Summary – Critical analysis; **Julius Ceasar - Anthony's Funeral Speech** – Author Biography - Plot – Theme - Character sketch – Summary – Critical analysis.

UNIT 5: FUNCTIONAL ENGLISH **12**

Wh – Questions - Pattern – Active and Passive voice – usage of passive voice – structure of passive verb; Modal verbs – Tenses.

TEXT BOOKS:

1. Corbett, "My India", Rupa Publications India Pvt. Ltd., 2018
2. Stories of Innocent by C.Rajagopalachari, Bharathiya Vidya Bhavan, 2009

REFERENCE BOOKS:

1. Shakespeare – The Complete Work; Wilco Publishing House, Mumbai, India. 2005.
2. Hilaire Belloc, "Matilda", Random House UK, 1994, Shakespeare, "Macbeth", Macmillan Publisher, 2014.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA405	**VECTOR CALCULUS, FOURIER SERIES AND FOURIER TRANSFORMS**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Siva &Mathematics				

COURSE OBJECTIVES :-

To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understand thoroughly

COURSE OUTCOMES (COs)

CO1	Familiar with physical interpretation of divergence and curl of a vector
CO2	Be exposed to evaluating line, surface and volume integrals
CO3	Be thorough with the study of Fourier series expansions
CO4	Be familiar with half range Fourier series and harmonic analysis
CO5	Be thorough with properties and theorems on Fourier transforms with even functions
CO6	Be exposed Convolution theorem of Fourier transforms

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT I – VECTOR CALCULUS **12**

Gradient, Divergence of a scalar point function and curl of a vector point function directional derivative, unit normal to a surface, Solenoidal and irrational vectors – physical interpretation of divergence and curl of a vector point function.

UNIT II – LINE AND VOLUME INTEGRAL **12**

Line surface and volume integrals - theorems of Gauss, Stokes and Greens (with proof) - simple problems.

UNIT III – FOURIER SERIES **12**

Fourier series- definition - Fourier Series expansion of periodic functions with Period 2π and period $2l$ – Use of odd & even functions in Fourier Series

UNIT IV - HALF RANGE COSINE AND SINE SERIES **12**

Half-range Fourier series – definition- Development in Cosine series & in Sine series Change of interval.

UNIT V - FOURIER TRANSFORM **12**

Dirichlet's conditions, Fourier integral formula (with proof), Fourier transform, Inverse Theorem for Fourier transform, Fourier sine and cosine transforms and their inversion formulae. Linearity property of Fourier transforms, Change of scale property, Shifting theorem, Modulation theorem, Convolution theorem of Fourier transforms, Parseval's identity.

TEXT BOOK

P.R.Vittal & V.Malini, "Vector Calculus, Fourier Series and Fourier Transforms", Margham Publications, 2004.

REFERENCES

1. S. Narayanan and T.K. Manickavachagam Pillai, "Vector algebra and Analysis", S.Viswanathan Pvt. Ltd., 1995.
2. S.Narayanan and T.K.Manickavachagam Pillai, "Calculus, Volume III", Vijay Nicole Imprints Pvt. Ltd., Chennai, 2004.
3. A.R.Vasistha and R.K.Gupta, "Integral Transforms", Krishna Prakashan Media Pvt. Ltd., New Delhi, 2011.
4. S. Narayanan, R. Hanumantha and T. K. Manickavachagam Pillai, "Ancillary Mathematics, Volume I & II", S. Viswanathan Printers, Chennai, 2007.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA406	**CORE – 8 - FLUID DYNAMICS**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Designed by – Department of Mathematics				

COURSE OBJECTIVES :-

To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understand thoroughly

COURSE OUTCOMES (COs)

CO1	Familiar with Differential equation of fluid statics and Accelerating fluids in the absence of shear stress.
CO2	Be exposed to Kinematics and stress–strain rate relationship in fluids-Translation-Rotation-Navier-Strokes
CO3	Be thorough with the study of Mathematical model of fluid motions. Integral equations
CO4	Be familiar with Boundary Layer Flow and Flow in pipes
CO5	To study One dimensional compressible flow. Isentropic flow, Adiabatic constant area flow
CO6	Familiar with Boundary Layer Flow and Flow in pipes

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

Unit I **12**

Definition of Fluid, Physical classification and types of flow. Differential equation of fluid statics and Accelerating fluids in the absence of shear stress.

Unit II **12**

Mathematical model of fluid motions. Integral equations-Conservation of Mass. Momentum-Newton's II law of Motion. Angular Momentum-First law of thermodynamics(Statement, Proof & problems). Second law of thermodynamics

Unit III **12**

Kinematics and stress–strain rate relationship in fluids-Translation-Rotation-Navier-Strokes Equation-Energy Equation. Relationship between Momentum-Energy, Thermodynamics &

Bernoulli Equation.

Unit IV **12**

Boundary Layer Flow and Flow in pipes. External flow, Internal Flow. Thermal aspects of Viscous flow.

Unit V **12**

One dimensional compressible flow. Isentropic flow, Adiabatic constant area flow. Frictionless constant area flow. Isothermal flow with friction. Incompressible flow.

Text Books

1. Bansal.R.K, "A Textbook of Fluid Dynamics". Laxmi Publications, New Delhi. 2008

References

1. Walther Kaufmann, "Fluid Dynamics" , Tata McGraw-Hill, 1963.
2. Vijay Gupta, Santosh K. Gupta, "Fluid Mechanics and its Applications", Wiley Eastern Ltd., 1984.
3. Sawhney G.S, "Fundamentals of Fluid Dynamics" 2nd Edn. I.K. International Publishing House. (2011)
4. William F.Hughes & John A.Brighton. "Fluid Dynamics", Schaum's Series. TMH. 2004

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

		L	T		C
BPS402	**ALLIED PHYSICS PAPER – II**				
	Total Contact Hours – 60	5	0	0	4
	Prerequisite course – Science / Mathematics Studied in Higher Secondary Studies				
	Course Coordinator Name & Department:- Dr S. Anandhi / Physics				

COURSE OBJECTIVES:- This course is to high light the Modern Physics and digital Electronics : To enhance the fundamental knowledge in Basic concepts of physics and to understand the concepts of Electrical and magnetic properties and study about various laws, circuits and analysis of different techniques

COURSE OUTCOMES (COs)

CO1	Understand the basic concepts of wave mechanics.
CO2	To Learn about the principles of nuclear reactions.
CO3	Acquire knowledge about the renewable and non-renewable energies.
CO4	Understand the concepts of crystals and optical communication.
CO5	Understand the basic concepts of electronics.
CO6	Understand the basic concepts of utilization of commercial devices and some applications.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO2
2	CO1	H	M	M		H				
	CO2			L		H			H	
	CO3	L	L	M	H	H				
	CO4	H		H		M				
	CO5	M	H	M		L				
	CO6	H	H	H	M					

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
									□	
4	Approval	47th Academic Council Meeting								

UNIT –I ELECTROSTATICS
12

Electrostatics Coulomb's inverse square law – Gauss theorem and its applications (Intensity at a point due to a charged sphere & cylinder) – Principle of a capacitor – Capacity of a spherical and cylindrical capacitors – Energy stored in a capacitor – Loss of energy due to sharing of charges - Capacitors in series and parallel – Types of capacitors.

UNIT II –MAGNETISM **12**

Magnetism Intensity of magnetization – Susceptibility – Types of magnetic materials –

Properties of para, dia and ferromagnetic materials – Cycle of magnetization – Hysteresis – B-H curve – Applications of B-H curve – Magnetic energy per unit volume – Ferromagnets, ferrimagnets and their applications.

UNIT III -ATOMIC PHYSICS 12

Atomic Physics Atom Models: Sommerfield's and Vector atom Models – Pauli's exclusion Principle – Various quantum numbers and quantization of orbits. X-rays: Continuous and Characteristic X-rays – Mosley's Law and importance – Bragg's law – Miller indices – Determination of Crystal Structure by Laue's Powder photograph method.

UNIT –IV NUCLEAR PHYSICS 12

Nuclear Physics Introduction – Nucleus – Classification of Nuclei – Nuclear Size – Charge – Mass and Spin – Liquid drop model.Nuclear Radiations and their properties, particle accelerators – Betatron and Proton Synchrotron - Four types of reactions – Elementary particles and their classifications.

UNIT –V DIGITAL ELECTRONICS 12

Digital Electronics Decimal – Binary – Octal and Hexa Decimal number systems and their Mutual Conversions – 1's and 2's complement of a Binary number and Binary arithmetic (Addition, Subtraction, Multiplication and Division) – Binary Subtraction by 1's and 2's complement method – Basic logic gates – AND, OR, NOT, NAND, NOR and EXOR gates – NAND and NOR as universal building gates – Boolean Algebra – Laws of Boolean Algebra – De Morgan's Theorems – Their verifications using truth tables.

TEXTBOOKS:

1. R. Murugesan., Electricity and Magnetism. S. Chand & Co, New Delhi, Third Revised edition, 2001.
2. R. Murugeshan, Kiruthiga Sivaprasath, Modern Physics., S. Chand & Co, New Delhi, First edition, 1984.
3. R. S. Sedha, A text book of Digital Electronics, S. Chand & Co, New Delhi, First edition, 2004.

REFERENCE

1. Narayanamurthi, Electricity and Magnetism, The National Publishing Co, First edition, 1988.
2. J. B. Rajam, Atomic Physics., S. Chand & Company Limited, New Delhi, First edition, 1990.
3. B. N. Srivastava, Basic Nuclear Physic, Pragati Prakashan, Meerut, 2005.
4. Albert Paul Malvino, Digital principles and Applications, McGraw-Hill International Editions, New York, 2002.

Course Coordinator HOD

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL003	BASIC TAMIL – II	L	T	P	C
	Total Contact Hours – 45	2	0	0	2
	Prerequisite course – Basic Tamil – I				
	Course Coordinator Name & Department :- ஸ்ரீதேவி&தமிழ்த்துறை				

COURSE OBJECTIVES :-

தமிழ்மொழியின்அடிப்படைக்கூறுகள்பற்றிஅறியச்செய்தல்

COURSE OUTCOMES (COs)

CO1	தமிழ் மொழியின் சொல் வகை, திணை, பால் பாகுபாடு பற்றி அறிவர்
CO2	அடுக்குத்தொடர், இரட்டைக்கிளவி, ண,ன,ர,ற,ள,ழ வேறுபாடு பற்றி அறிவர்
CO3	பத்திகளைசு ருக்கியும், விரிவாக்கி எழுதும் அறிவைப்பெறுவர்
CO4	சொற்களை கையாண்டு உரையாடுவது பற்றி பெறுவர்
CO5	கட்டுரை, கடிதம் எழுதும் அறிவைப்பெறுவர்
CO6	தமிழ் மொழியில் சரளமாக பேசும் எழுதும் திறனைப்பெறுவர்

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	M	H						M	H	M
	CO2	M	H								
	CO3	M	H								
	CO4	M	H								
	CO5	M	H								
	CO6	M	H								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
							✓			

4	Approval	Academic Council Meeting

அலகு –1 **9**

1.1 தமிழ் மொழி அறிமுகம்
1.2 சொல் வகைகள்
1.3 திணை, பால் பாகுபாடு

அலகு – 2 **9**

2.1 அடுக்குத் தொடர், இரட்டைக் கிளவி
2.2 ஒரு ஓர் வேறுபாடு
2.3 ண,ன,ர,ற,ள,ழ வேறுபாடு

அலகு – 3 **9**

3.1 பத்தியிலிருந்து வினாக்களுக்குரிய விடைகளை கண்டறியும் பயிற்சி

3.2 சுருக்கி வரைதல்
3.3 விரிவாக்கி எழுதுதல்

அலகு – 4 **9**

4.1 உரையாடல்
4.2 கட்டுரை
4.3 மடல் வரைதல்

பாட நூல்கள்

1. மருதூர் அரங்கராசன்,“தவறின்றித் தமிழ் எழுத”, ஐந்திணைப்பதிப்பகம், 2012
2. ஞா.தேவநேயப்பாவாணர், “உயர்தரக் கட்டுரை இலக்கணம்”, கௌராபதிப்பகம்,2013
3. க. கயிலாயநாதன்,“தமிழ் மொழி விளக்கம்”, முல்லை நிலையம், 2006

பார்வை நூல்கள்

1. பாரதிதாசன், "தவறின்றித்தமிழ்எழுத", நாம்தமிழர் பதிப்பகம், 2013
2. ஆசிரியர்குழு, "கடிதம்வரைதல்', லியோபப்ளிகேஷன்ஸ், 2013
3. பாவாணர், "கட்டுரைவரைவதுஎப்படி?", தமிழ்மண்பதிப்பகம், 2012

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BAL004	SPECIAL TAMIL – II	L	T	P	C
	Total Contact Hours –	2	0	0	2
	Prerequisite course – **SPECIAL TAMIL – I**				
	Course Coordinator Name& Department :முனைவர்.ம.சித்ராகண்ணு & தமிழ்த்துறை				

COURSE OBJECTIVES :- நாட்டுப்புற வாழ்வியலை பற்றி அறியச்செய்தல்

COURSE OUTCOMES (COs)

CO1	தாலாட்டு மற்றும் குழந்தைப்பாடல்கள் பற்றி அறிவர்
CO2	தொழிற்பாடல், காதல்பாடல், கொண்டாட்டப்பாடல்கள் பற்றி அறிவர்
CO3	சங்ககால மக்களின் விடுகதை, நம்பிக்கை, சடங்குகள் பற்றி அறிவர்
CO4	பழமொழிகள், நாட்டுப்புறமருத்துவம், சமயவழிபாடுகள் பற்றி அறிவர்
CO5	நாட்டுப்புற இலக்கிய வரலாறு பற்றி அறிவர்
CO6	வாய்மொழி இலக்கியம் மூலம் சங்க கால மக்களின் வாழ்வியலை அறிவர்

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	M						H	M	M
	CO2	H	M								
	CO3	H	M								
	CO4	H	M								
	CO5	H	M								
	CO6	H	M								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
		✓					✓			

4	Approval	Academic Council Meeting

அலகு 1 **9**

தாலாட்டுப்பாடல்- குழந்தைப்பாடல்- விளையாட்டுப்பாடல்

அலகு 2

தொழிற்பாடல்கள் - காதல்பாடல்கள்- கொண்டாட்டப்பாடல்கள்

அலகு 3 **9**

விடுகதைகள் - நம்பிக்கைகள் -சடங்குகள்

அலகு 4 **9**

பழமொழிகள் -நாட்டுப்புறமருத்துவம் - சமயவழிபாடுகள்

அலகு 5 **9**

நாட்டுப்புற இலக்கிய வரலாறு

பாட நூல்கள்

1. சு.சக்திவேல், "நாட்டுப்புறஇயல்ஆய்வு", மணிவாசகர்பதிப்பகம், 2015
2. சு.சண்முகசுந்தரம், "நாட்டுப்புறஇலக்கியவரலாறு", காவ்யாபதிப்பகம், 2017
3. நா. வானமாமலை, "தமிழர்நாட்டுப்பாடல்கள்", நியூசெஞ்சுரிபுக்ஹவுஸ், 2014

பார்வை நூல்கள்

1. ஆறு.இராமநாதன், "நாட்டுப்புற பாடல் வகைகள்", புலமை வெளியீடு, 1982
2. சரசுவதி வேணுகோபால், "தமிழக நாட்டுப்புறவியல்", தாமரை வெளியீடு, 1981
3.கழனியூரன், "நாட்டுப்புறவியல் கட்டுரைகள்", காவ்யா பதிப்பகம், 2014

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BPS4L2	**PHYSICS PRACTICAL II**	L	T	P	C
	Total contact Hours-30	0	0	4	2
	Prerequisite- Science / Mathematics Studied in Higher Secondary Studies				
	Course Designed by-Department of Physics				

COURSE OBJECTIVES:-

To gain the practical knowledge of measuring tools, bending of beams, time period of pendulum and surface tension of different liquids

COURSE OUTCOMES (COs)

CO1	Handling of basic practical tools such verinyre, screw gauge and microscope
CO2	Developing technical skills
CO3	Understand the concept of material science.
CO4	Understand the equations with real coefficients of different modules
CO5	To gain the knowledge of instrumentation techniques
CO6	Verification of laws and concepts of physics

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
2	CO1	H	M	M		H			H	
	CO2			L		H				
	CO3	L	L	M	H	H				
	CO4	H		H		M				
	CO5	M	H	M		L				
	CO6	H	H	H	M					

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
									□	

4	Approval	47th Academic Council Meeting

ALLIED PRACICAL – II- LIST OF EXPERINCE

1. Logic Gates (AND, OR, NOT, NAND, NOR and EX-OR) Using IC's.

2. NAND and NOR as Universal Gates.

3. Verification of De-Morgan's Theorems.

4. Half –Adder and Half –Subtractor using logic gates.

5. Full Adder and Full Subtractor using logic gates.

6. Single Stage Amplifier.

7. Potentiometer-Measurement of Current.

8. Potentiometer-Calibration of low range voltmeter.

9. Carey Foster's Bridge- Specific Resistance.

10. Mathematical Operator-Addition, Subtraction using OP-Amp.

TEXT BOOKS:

1) C. Couseph, G.Rangarajan- a text book of practical physics- S. Viswanathan publisher - Part I (1990).

2) C. Couseph, G.Rangarajan, R. Balakrishnan- a text book of practical physics- S. Viswanathan publisher - Part II (1996)

REFERENCE:

1) S.L Gupta and V.Kumar- Practical Physics- Pragati Prakashan- 25th Edition (2002).

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

SEMESTER V

BMA501	**REAL ANALYSIS-I**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	2	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Kavitha &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

COURSE OUTCOMES (COs)

CO1	Be thorough with real and complex fields
CO2	Be familiar with metric spaces
CO3	Understand thoroughly the convergence of the sequences and series
CO4	Get exposed to the limits of functions and in detail, derivatives of higher order
CO5	To study Pointwise convergence of sequences of functions–Uniform convergence of sequences of functions – Consequences of uniform convergence
CO6	State and explain Derivatives, Rolle's Theorem

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

Unit I : **Continuous functions on Metric Spaces** **12**

Functions continuous at a point on the real line, Reformulation, Functions continuous on a metric space, Open sets, Closed sets, Discontinuous functions on the real line.

Unit II: Connectedness Completeness and compactness **12**

More about open sets, connected sets, Bounded sets and totally bounded sets, Complete metric spaces, Compact metric spaces

Unit III: **12**

Continuous functions on a compact metric space, Continuity of inverse functions, Uniform continuity. Sets of measure zero, Definition of the Riemann integral, Existence of the Riemann integral (Statement of theorem only) –Properties of Riemann integral

Unit IV: Calculus **12**

Derivatives, Rolle's Theorem, Law of mean, Fundamental theorems of calculus, Taylor's theorem.

Unit V :Sequences and Series of Functions **12**

Pointwise convergence of sequences of functions–Uniform convergence of sequences of functions – Consequences of uniform convergence – Convergence and uniform convergence of series of functions – Integration and differentiation of series of functions.

Text Book:

1. Richard R. Goldberg ,"Methods of Real Analysis", Oxford and IBH Publishing Co., 2nd Edn. 1976.

References

1. Walter Rudin, "Transforms and Partial Differential Equations", fifth revised edition, , Mc-Graw Hill international edition, 1976.
2. K. ChandrasekharaRao, K.S Narayan, "Real analysis, Volume II",, S. Viswanathan Printers& Publishers Pvt. Ltd, 2008.
3. Shanti Narayan, M.D. Raisinghania, "Elements of Real Analysis", S. Chand & Company Ltd., Twelfth Revised Edition, 2011.
4. Kenneth A. Ross, "Elementary Analysis: The theory of Calculus", Springer, 2010.
5. Qamrulhasan Ansari, "Metric Spaces", , Narosa Publishing House, 2010.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA502	**CORE – 10 ALGEBRAIC STRUCTURES**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	2	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Siva &Mathematics				

COURSE OBJECTIVES :-

To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understand thoroughly

COURSE OUTCOMES (COs)

CO1	Be familiar with group theory
CO2	Be thorough with subgroups and quotient groups
CO3	Study the characteristics of the rings and fields
CO4	Study further aspects of quotient rings and fields
CO5	Be exposed to basic concepts of bases
CO6	To understand Derivatives, Rolle's Theorem

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/ Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT I **12**

Group Theory: Groups–Subgroups–Counting Principle–Normal Subgroups

UNIT II **12**

Homomorphism – Automorphisms – Cayley's theorem – Permutation groups.

UNIT III **12**

Ring Theory: Definition and examples of Rings–Some special classes of rings–Homomorphism.

UNIT IV **12**

Ideals and Quotient rings: More ideals and Quotient ideals–field of quotients of an integral domain.

UNIT V **12**

Euclidean rings: A particular Euclidean ring–Polynomial Rings–Polynomials over the rational field.

Text Book:

1. Herstein. I.N. “Topics in Algebra”, Second Edition, Wiley Student Edition, 2009.

References

1. M.L. Santiago, “Modern Algebra”, Tata McGraw-Hill Publishing Co. Ltd.
2. M. Artin, “Algebra”, Prentice Hall of India, 1991.
3. P.B. Bhattacharya, S.K. Jain & S. R. Nagpaul, “Basic Abstract Algebra” [IInd Edition], Cambridge Univ. Press, 1997 [Indian Edition].

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA503	**CORE – 11 OPERATIONS RESEARCH**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	2	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr. M. Siva &Mathematics				

COURSE OBJECTIVES :-

To make the students learn about the chemistry from the basic and understood all theoretical background with all concepts understand thoroughly

COURSE OUTCOMES (COs)

CO1	Solve LPP using different techniques
CO2	Be familiar with the formulation of different types of problems
CO3	Be exposed to queueing theory
CO4	Be familiar with game theory
CO5	Study PERT – CPM calculations
CO6	To Explained Queuing system

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT I - LINEAR PROGRAMMING PROBLEM **12**

Formulation of LPP. Graphical Method – Simplex Method – Artificial Variable Techniques, Big-M Method of solving LPP

UNIT II - ASSIGNMENT PROBLEM **12**

Mathematical Formulation of an Assignment Problem – Assignment Algorithm - Unbalanced Assignment Models – Travelling Salesman Problems – Transportation Problems – Optimum solution.

UNIT III – QUEUEING THEOREM **12**

Queuing Theory – Introduction – Queuing system – Characteristics of Queuing system – symbols and Notation – Classifications of queues – Problems in (M/M/1): (∞/FIFO); (M/M/1): (N/FIFO); (M/M/C): (∞/FIFO); (M/M/C): (N/FIFO) Models.

UNIT IV – GAME THEORY **12**

Game Theory – Two person zero sum game – The Maximin – Minimax principle – problems - Solution of 2 x 2 rectangular Games – Domination Property – (2 x n) and (m x 2) - graphical method – Problems.

UNIT V – SCHEDULING PROBLEMS **12**

Network scheduling by PERT / CPM – Introduction – Network and basic components– Rules of Network construction – Time calculation in Networks – CPM. PERT – PERT calculations – Problems.

TEXT BOOK

1. Kandiswarup, P.K.Gupta, Man Mohan, "Operations Research", Sultan Chand & Sons Education Publications, New Delhi, 12th Revised edition, 2004.

REFERENCES

1. .V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan, "Resource Management Techniques", A.R.Publications, 2012.
2. Prem Kumar Gupta D. S. Hira, "Operations Research", 5th Edition, S. Chand & Company Ltd., Ram Nagar, New Delhi, 1998.
3. Hamdy Taha, "Operations Research", PHI India Publication.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA504	**CORE – 12 UNIX AND C PROGRAMMING**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	4	0	0	4
	Prerequisite course - Computer Science / Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- R. Balamurugan & CS				

COURSE OBJECTIVES :-

At the end of this course, students shall be able to this computer lab course aims to provide strong logical thinking and error-free syntax

COURSE OUTCOMES (COs)

CO1	Be familiar with the Standard Error - More on Commands.
CO2	Be familiar with Working with Directories
CO3	Be exposed to conditional statements
CO4	Be familiar with Functions, Passing arguments to a function
CO5	Study single dimension
CO6	To Explained Matrix manipulations

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
							✓			

4	Approval	Academic Council Meeting

UNIT I – UNIX **12**

Introduction - History - Basic Commands - Working with Files - Working with Directories - Filename Substitution - Standard Input / Output and I/O Redirection - Pipes - Standard Error - More on Commands.

UNIT II - C LANGUAGE – INTRODUCTION **12**

Introduction- Identifiers and keywords, Constants and variables, Declarations – Expressions and statements, Types of operators - Library functions Input statements - Output statements.

UNIT III - CONDITIONAL STATEMENTS **12**

Conditional statements-If … else - Switch. Case - Looping - While, DO While - Break and

continue, Comma operator, go to statement.

UNIT IV – FUNCTIONS **12**

Functions-Definitions and prototypes - Passing arguments to a function - Storage class variables.

UNIT V – ARRAYS **12**

Arrays –single dimension- Arrays with two dimensions- Matrix manipulations - String operations.

TEXT BOOKS

1. Stephen G. Kochan and Patrick Wood, UNIX Shell Programming, Sams Publishing, 2003.
2. E.Balagurusamy, “Programming in ANSI C”, Tata McGraw Hill, 2008.

REFERENCE BOOKS

1. Arnold Robbins, “Unix in a Nutshell”, O'Reilly, 2005.
2. Kanetkar Y, “Let us C”, BPB Publications, 1995.
3. Deitel H.M. and Deitel .P.J, “How to Program C”, Prentice Hall India, 2001.
4. Kamthane, Ashok N, “Programming in C”, Pearson Education, 2013.
5. Yashavant Kanetkar, Exploring C, BPB Publications, 2003.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BSC5L1	**CORE – 13 C PROGRAMMING LAB**	**L**	**T**	**P**	**C**
	Total Contact Hours – 30	0	0	4	2
	Prerequisite course – Computer Science / Mathematics Studied in Higher Secondary studies				
	Course Designed by – Department of Mathematics				

COURSE OBJECTIVES :-

At the end of this course, students shall be able to this computer lab course aims to provide strong logical thinking and error-free syntax

COURSE OUTCOMES (COs)

CO1	To learn the codes writing and.
CO2	To master the debugging techniques
CO3	Be exposed to conditional statements
CO4	Be familiar with Functions, Passing arguments to a function
CO5	To present the results in neat form in C++ Language.
CO6	Understand about Program to evaluate sin(x), cos(x)

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
							✓			

4	Approval	Academic Council Meeting

List of Experiments to be Implemented in C language.

1. Program to print the following output using **for** loop

1
22
333
4444
……
……

2. Program to evaluate the following function to 0.0001% accuracy.

a)sin(x) **b**) cos(x) **c**) exp(-x)

b)

3. Program to find roots of a quadratic equation.
4. Program to sort the array of numbers and then to find median value.

5. Program to read an integer number and then to print in the reverse order and also to find the sum of all the digits.
8. Program to create structure, which consists of EMPLOYEE details like ID Number, Name, Designation, Basic Salary, DA, others. Then to calculate DA, HRA and PF depending on the basic salary and print gross salary, deduction, net salary.
9. Program to read two Matrices of different Data Types such as integers and floating point numbers and then to find the sum, difference, and product of the above two matrices.
10. Program to check whether the given string is a palindrome.
11. Program to solve ODE using Euler's method, R-K method.
12. Program to interpolate a value using Lagrange interpolation formula.
13. Program to find integral value using Simpson's formula.
14. Lagrange interpolation.
15. Trapezoidal and Simpson one-third rules.

REFERENCES

1. E. Srinivasa Reddy, "C Programming & Numerical Analysis", Pearson Education India, 2010.
2. Xavier, C, "C Language and Numerical Methods", New Age International publishers, 2003.
3. J. G. Kori, "Numerical Methods in 'C'", Firewall Media publishers, 2002.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA001	DISCRETE MATHEMATICS	L	T	P	C
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr.P. Sumathi & Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

COURSE OUTCOMES (COs)

CO1	Understand the Generating Functions
CO2	Understand the Tautological Implications
CO3	Understand the Functionally Complete sets
CO4	Understand the properties of Lattices
CO5	Understand the Boolean Algebra
CO6	Understand the Normal Forms , Principal Normal Forms.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT- I MATHEMATICAL INDUCTION, RECURRENCE RELATIONS AND GENERATING FUNCTIONS **12**

Techniques of Proof – Mathematical Induction – Recurrence – Polynomials and their Evaluations – Recurrence Relations – Generating Functions – Some Common Recurrence Relations – Primitive Recursive Functions – Recursive and Partial Recursive Functions.

UNIT- II MATHEMATICAL LOGIC **12**

TF Statements–Connectives–Atomic and Compound Statements– Well-Formed Statement Formulae –Parsing – Truth Table of a Formula – Tautology – Tautological Implications and Equivalence of Formulae.

UNIT-III MATHEMATICAL LOGIC (CONTD…) 12

Replacement Process–Functionally Complete sets of connectives and Duality law – Normal Forms – Principal Normal Forms.

UNIT -IV LATTICES 12

Lattices–Some properties of Lattices–New Lattices–Modular and Distributive Lattices.

UNIT –VBOOLEAN ALGEBRA 12

Boolean Algebra–Boolean Polynomials–Karnaugh Maps.

TEXT BOOK:

1. M.K. Venkataraman, N. Sridharan and N. Chandrasekaran, "Discrete Mathematics", The National Publishing Company, Chennai, 2003.
2. Sen.M.K, and B.C. Chakraborthy, "Discrete Mathematics", 2nd Edn. Books and Allied Private Ltd., Kolkata, 2002

REFERENCES:

1. 1. Johnsonbaugh.R, "Discrete Mathematics", 5th Edn. Pearson Education, Asia, 2001.
2. C.L. Liu, "Elements of Discrete Mathematics", McGraw Hill, New York, 1985.
3. Truss.J, "Discrete Mathematics for Computer Scientists", 2nd Edn. Pearson Education, Asia, 2000.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

SEMESTER VI

BMA601	**CORE- 14 - COMPLEX ANALYSIS**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	2	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Designed by – Department of Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

COURSE OUTCOMES (COs)

CO1	Grasp several facts on complex integration
CO2	Get exposed to the harmonic functions and its properties
CO3	Have sound knowledge in the derivatives of analytic functions
CO4	Be familiar with singularities of different types and the corresponding theorems
CO5	Be thorough with the evaluation of integrals of different types
CO6	To study Taylor's and Laurent's Theorem

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/POs**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT I –ANALYTIC FUNCTION **12**

Complex Numbers - Point at Infinity- Stereographic Projection - Analytic functions: Definitions of Function of a Complex Variable - Limits, Continuity - Derivatives and Differentiation Formula - Cauchy-Riemann Equations - Properties of Analytic Functions - Necessary and Sufficient Conditions for Analytic Functions - Harmonic Functions - Determination of Harmonic Conjugate and Analytic Function.

UNIT II – TRANSFORMATIONS **12**

Mappings Conformal Mapping - The transformations $w = az+b$, $w = 1/z$, $w = z^2$, $w = \sqrt{Z}$, $w = e^z$, Bilinear Transformation and special Bilinear Transformation.

UNIT III – CONTOUR INTEGRAL **12**

Integrals Contours - Line Integrals-Cauchy- Goursat's Theorem (without proof) Cauchy's Integral Formula - Derivatives of Analytic Functions - Maximum Modulus Theorem.

UNIT IV TAYLOR'S AND LAURENT'S THEOREM **12**

Power series - Taylor's and Laurent's Theorem - Singularities and Classification – Problems

UNIT V : EVALUATION OF INTEGRAL **12**

Cauchy's Residue Theorem- Evaluation of the Integrals of the following types

$$\int_0^{2\pi} f(\cos\theta,\sin\theta)\,d\theta,\quad \int_{-\infty}^{+\infty} f(x)\sin ax\,dx,\quad \int_{-\infty}^{+\infty} f(x)\cos ax\,dx,\quad \int_{-\infty}^{+\infty} \frac{p(x)}{q(x)}\,dx$$

$\int_{-\infty}^{+\infty} f(x)\,dx$ Where f(x) has finite number of poles on the real axes. Jordan's lemma.

TEXT BOOK

1. S. Narayanan and T. K. Manickavachagam Pillai, "Complex Analysis", Revised Edition, S. Viswanathan Printers & Publishers, 2002.

REFERENCES

1. P.Duraipandian and Laxmi Duraipandian, "Complex Analysis", Emerald Publishers, Chennai, 1999.
2. S. Ponnusamy, "Foundations of Complex Analysis", Narosa Publishing House, ND. 2000.
3. Murray R. Spiegel, "Theory and Problems of Complex Variable", Tata-McGraw Hill Edition, New Delhi. 2005.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA602	GRAPH THEORY	L	T	P	C
	Total Contact Hours – 60	3	2	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr.K. Ramalakshmi &Mathematics				

COURSE OBJECTIVES :-

To equip students with adequate knowledge of graph theory

COURSE OUTCOMES (COs)

CO1	To introduce the students to the beautiful and elegant theory of graphs.
CO2	To equip the students with problem solving, critical thinking and algorithm techniques that may be used to solve a host of very practical real-world problems.
CO3	To study and develop the concepts of graphs, subgraphs, trees connectivity,
CO4	To study Eulerian and Hamiltonian graphs, matching colorings of graphs and planar graphs
CO5	To introduce the students Adjacency and incidence of matrices
CO6	To introduce chromatic number and coloring

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
					✓					

4	Approval	Academic Council Meeting

UNIT I **12**

Graphs, subgraphs, Degree of a vertex, Isomorphism of graphs, independent sets and coverings; intersection graphs.

UNIT II **12**

Adjacency and incidence of matrices; Operations on graphs; degree sequences; graphic sequences; Walks; trails; paths; problems.

UNIT III **12**

Connectedness and components; cut point, bridge, block; Connectivity theorems and simple problems.

UNIT IV **12**

Eulerian graphs and Hamiltonian graphs; simple problems; Trees, theorems, and simple problems.

UNIT V **12**

Planarity; definition and properties; Characterization of planar graph, Colour ability; chromatic number and index.

TEXT BOOK

S. Arumugam and S. Ramachandran, “Invitation to Graph Theory”, SITECH Publications India Pvt. Ltd, Chennai – 17, 2006.

REFERENCES

1. S. Kumaravelu, Susheela Kumaravelu, “Graph Theory”, SKV Publishers, Sivakasi, 1999.
2. S.A. Choudham, “A First Course in Graph Theory", Macmillan India Ltd, 2000.
3. Robin J. Wilson, “Introduction to Graph Theory”, Prentice Hall, 2012.
4. J.A.Bondy and U.S.R. Murthy, “Graph Theory with Applications”, Macmillan, London, 2008.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA004	**BIO-STATISTICS**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr.K. Ramalakshmi &Mathematics				

OBJECTIVES

To impart knowledge about important tools in Statistics to apply and solve real life problems in Genetic Engineering.

COURSE OUTCOMES (COs)

CO1	Understand the computation of basic measures in Statistics
CO2	Understand the importance and the application of Probability in Engineering.
CO3	Various tools for testing the parameters based on samples.
CO4	How Design of Experiments are to be analyzed.
CO5	Concepts of Process Control and various Charts to control the quality of products.
CO6	Analyze the applications of Baye's theorem

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/POs**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
						✓				

4	Approval	Academic Council Meeting

UNIT – I **12**

Scope of Statistical methods in medicine, Role of Statistics in clinical medicine, Areas of application of Statistics, Role of Statistics in preventive medicine and Areas of application. Observations in medicine: Qualitative and Quantitative observation – Scale of measurement.

UNIT – II **12**

Health Statistics: Utilization of the basic data, Sources of Health Statistics, Problems in the Collection of sickness data and Measurement of sickness - Hospital Statistics – International classification of diseases: General Principles and Numbering system of the classification problems in applications of ICD.

UNIT – III **12**

Probability – Measurement of Probability – Laws of probability for independent events: Addition law, multiplication law – Conditional probability – Baye's theorem (statement only) – Application of Baye's theorem in determining diagnostic efficacy – Sensitivity, Specificity, False Negative Rate, False Positive Rate, Predictive value positive, Predictive value negative.

UNIT – IV **12**

Biological Assay: Direct assays, Indirect Assays – Sequential medical Trials – Special features – Scope – Steps involved

UNIT – V **12**

Clinical trials – Types of Clinical trials, Therapeutic trials, Design and Random Allocation, Mode of Administration of Therapy, Observations and Records – Deviations from Design, Prophylactic trials, Ethical considerations and Community trials.

TEXT BOOK:

1. P.S.S. Sundar Rao and J. Richard, "Introduction to Biostatistics and Research Methods", Fourth Edition, Prentice – Hall of India Private Limited, New Delhi – 1, (2006).

REFERENCE BOOKS:

1. Arora, P.N & Malham, P.K, "Bio-Statistics", Himalaya Publishing House, Mumbai, (1998).
2. Wayne W.Daniel, "BIO-STATISTICS, Basic Concepts and Methodology for the Health Sciences", 9th Edition, John Wiley and Sons Inc. UK, (2013).

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BMA007	**MECHANICS**	**L**	**T**	**P**	**C**
	Total Contact Hours – 60	3	1	0	4
	Prerequisite course – Mathematics Studied in Higher Secondary studies				
	Course Coordinator Name & Department :- Dr.K. Ramalakshmi &Mathematics				

OBJECTIVES

To equip students with adequate knowledge of Mathematics to formulate problems and solve them analytically or numerically.

COURSE OUTCOMES (COs)

CO1	Understand in detail, simple harmonic motion
CO2	Analyze the characteristic of elasticity
CO3	Study, in detail, motion of a projectile
CO4	Be familiar with central forces and orbit
CO5	Be thorough with motion of a rigid body
CO6	Understand in detail, simple harmonic motion

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H	M	-	-	-	-	H	H		
	CO2	H	M	-	-	-	-	M			
	CO3	H	M	-	-	-	-	H			
	CO4	H	M	-	-	-	-	M			
	CO5	H	M	-	-	-	-	H			
	CO6	H	M	-	-	-	-	H			

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
						✓				

4	Approval	Academic Council Meeting

UNIT I **12**

Statics: Concurrent system of forces: Triangle law of forces, Lami's Theorem, Polygon law of forces, Moment of a force, Varignon's Theorem.

UNIT II **12**

Friction: Laws of friction, Angle of friction, Ladder problems. Dynamics - Energy: Kinetic energy, Conservation of energy, Conservation forces.

UNIT III **12**

Projectiles: Trajectory, Horizontal and inclined planes.S.H.M: General solution, Elastic strings, Composition of two S.H.M, Simple Pendulum, Seconds Pendulum.

UNIT IV **12**

Motion of a particle along a curve: Conical Pendulum, Motion on a curved track, Circular track, banked up track, Vertical curve, Motion on the outside of a smooth vertical circle,

inside a vertical circle.

UNIT V **12**

Central Orbits: Central forces, Differential equation of a central orbit, Pedal equation, Apse, p-r equation, Inverse square law.

TEXT BOOK

1. Viswanathan Naik.S, and M.S. Kasi, "Dynamics", Emerald Publishers, 1992.

REFERENCES

1. Duraipandian.P, Laxmi Duraipandian, Muthamizh Jayapragasam, "Mechanics", S.Chand & Co. 2010.
2. Venkataraman,MK, "A text book of Statics", Agasthiar Publications, 1994.
3. Venkataraman,M.K, "A text book of Dynamics", Agasthiar Publications, 1994.

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BBA011	BUSINESS PROCESS OUTSOURCING - MANAGEMENT	L	T	P	C
	Total Contact Hours– 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name& Department:- Ms. D. K.Sowmiya lakshmi,BBA				

COURSE OBJECTIVES:-

- To familiarize the students with the basic fundamentals of BPO.
- To impart knowledge on type of BPO and call centers .
- To enable the students on the concept Healthcare BPO & Transaction BPO.
- To peep into the concept of Human Resource BPO and the career opportunities in BPO.

COURSE OUTCOMES(COs)	
CO1	Describe the basic fundamentals of BPO.
CO2	Discuss and develop the awareness about Types of BPOs and Call Centers
CO3	Identify the concept of Health care BPOs
CO4	Examine the concept of Transaction BPOs
CO5	Develop the confidence in Human Resource BPO and career opportunities in BPOs
CO6	Formulate the Types of Transaction Processing BPO in India

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	**COs/ Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	CO1	H							H		
	CO2				H						
	CO3			H							
	CO4		M								
	CO5	M									
	CO6		H								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR
									✓	

4	Approval	Academic Council Meeting

UNIT-I **6**

Business Process Outsourcing– Basics – Benefits of BPO– BPO companies in India.

UNIT-II **6**

BPO Industry – Employment Opportunities– types of BPO – Call centers– Types of Call Centers–
Issues and Problems.

UNIT-III **6**

Health Care-BPO - Structure of foreign Health Care sector– Future Trends and Threats.

UNIT-IV **6**

Transaction Processing BPO– Elements of Back Office services– Types of Transaction Processing
BPO in India.

UNIT-V **6**

Human Resource BPO-Reasons for outsourcing HR– Activities involved in HR BPO– HR Outsourcing Trends– Carrier in HR BPO.

TEXT BOOKS:

1. John K. Holvey, Borboro Murphy Melby, Business Process Outsourcing–Wiley Publisher-2007.
2. Sarika Kulkarni –Business Process Outsourcing–Jai co Publishing house – 2005
3. Rick L. Click, Thomas N. Duening, Business Process Outsourcing–John Willey & sons, Publisher, 2004

REFERENCE BOOKS:

1. Deepak Shikapur – BPO DIGEST– Ameya (Inspiring books) – 2004.
2. Clifton – System analysis for business data processing– Prentice hall Publications.
3. Anand kumar, V. &Biswas, S., 2008. Business Process Outsourcing, Sage Publications Pvt. Ltd

Course Coordinator **HOD**

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BBE002	**DESKTOP PUBLISHING**	**L**	**T**	**P**	**C**
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name & Department :- N. Mathimagal & BCA				

COURSE OBJECTIVES:-

The learner will have the knowledge about the use of Computer Hardware and basic Software

COURSE OUTCOMES (COs)

CO1	Gain knowledge of basic concepts of Computer Hardware and basic Software
CO2	Analyze the use of Netscape to access the Course Home Page and Tips and Tricks. .
CO3	Discuss the basic Principles and development of publishing and printing .
CO4	Identify the basic Knowledge and operations of a prepress computer system
CO5	Demonstrate the typography.
CO6	Test real time application using a basic concept.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	**COs/Pos**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**	**PSO3**
2	**CO1**	**H**	**L**						H		
	CO2	**M**	**L**								
	CO3	**H**	**-**								
	CO4	**H**	**L**								
	CO5	**M**	**L**								
	CO6	**H**	**L**								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core	Core Elective (CE)	Non-Major Elective (NE)	Open Elective	Any other	Project/Term Paper/ Seminar/ Internship(PR)
4	Approval	Academic Council Meeting								

DESKTOP PUBLISHING

UNIT-1

Classification of Computer Hardware and basic Software. Different Hardware and Software with their uses. Types of Software i.e. System, - Application etc. Different types of Input & Output devices. Workshop safety and environmental awareness - Principles and development of publishing and printing - Desktop publishing.

UNIT-2

Knowledge and operations of a prepress computer system – Typography - Image processing.

UNIT -3

Finished art work - Other related processes – Case Study.

Reference Books:-

G.Dalin. M.Sc software engineering, HSI PUBLICATIONS

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BCA001	**COMPUTER APPLICATION**	**L**	**T**	**P**	**C**
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name & Department :- N.Mathimagal& BCA				

COURSE OBJECTIVES:-

The learner will have the knowledge about the basic operations of a computer system, computer applications software, input, and output and storage devices.

COURSE OUTCOMES (COs)

CO1	Define the Characteristics, History, Classification, Personal Computers and Applications.
CO2	Demonstrate understanding of the basic operations of a computer system.
CO3	Explain the principles of operations of computer systems used in a particular application, specifically in terms of the systems' hardware and software components.
CO4	Discuss the various types of Processors, Input and Output devices, OS & DOS command.
CO5	Identify the suitable Storage Devices and Software's to solve the problem.
CO6	Use computer applications software to solve problems.

Mapping of Course Outcomes with Program outcomes (POs)

(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	**CO1**	H	L						H		
	CO2	H	L								
	CO3	H	-								
	CO4	H	L								
	CO5	M	-								
	CO6	H	L								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
									✓	
4	Approval	Academic Council Meeting								

UNIT–I:-

Brief History of Development of Computers ,Computer System Concept, Computer System Characteristics ,Capabilities and Limitations, Types of Computers-.,Personal Computer (PCs) - IBM PCs, Types of PCs- Desktop, Laptop, Notebook, Palmtop, etc. Basic Components of a Computer System - Control Unit, ALU, Input/Output semiconductor Memory.Storage

fundamentals - Primary Vs Secondary memory.

UNIT–II:-

Input Devices :Keyboard, Mouse, Joystick, Scanners, Digital Camera, MICR,OCR, OMR, , Light pen, Touch Screen. Output Devices Monitors - Characteristics and types of monitor, Size, Resolution, Refresh Rate, Dot Pitch, Video Standard - VGA, SVGA, XGA etc. Printers - Daisy wheel, Dot Matrix, Inkjet, Laser. Plotter, Sound Card and Speakers.

UNIT–III:-

Various Storage Devices - Magnetic Disks, Hard Disk Drives, Floppy, Disks, Optical Disks, Computer Software ,Need, Types of Software's - System software, Application software System Software - Operating System, compiler ,Assemblers, Interpreter .

TEXT & REFERENCE BOOKS:-

1. Computers Today By S.K. Basandra, Galgotia Publications.
2. Fundamentals Of Information Technology By Alexis Leon & Mathews Leon, Vikas Publishing House, New Delhi.
3. Dos Quick Reference By Rajeev Mathur, Galgotia Publications.

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BCA002	**GRAPHICAL AND WEB DESIGNING**	**L**	**T**	**P**	**C**
	Total Contact Hours - 30	2	0	0	2
	Prerequisite course – Nil				
	Course Coordinator Name &Department :- Jennifer P. & CS				

COURSE OBJECTIVES :-
To gain knowledge in basic web designing concepts.

COURSE OUTCOMES (COs)

CO1	Remember the web basics and graphic design.
CO2	Understand thedeisgn principle.
CO3	Analyze the color theory and tyogrpahy.
CO4	Apply the basic principle and drawing design.
CO5	Implement the communication design and layout techniques
CO6	Illustrate a real time application using image processing concept.

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO2	PSO3
2	CO1	H	L							H	
	CO2	H	L								
	CO3	H	L								
	CO4	H	-								
	CO5	M	L								
	CO6	H	L								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
							✓			
4	Approval	Academic Council Meeting								

UNIT-1:
Introduction to Graphic Design – Drawing – Design Principle.

UNIT -2:
Color theory – Typography – Idea Generation.

UNIT -3:
Stylisation – Communication Design – Lay outing Techniques – Image Processing – Page Layouting.

REFERENCE BOOKS:

1. Computer Graphics: Principles and Practice in C, by J. D. Foley, A. Van Dam, S. K. Feiner, J. F. Hughes. Addison-Wesley, 2nd ed.

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BCA003	MULTIMEDIA	L	T	P	C
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name & Department :- N.Mathimagal& BCA				

COURSE OBJECTIVES:-

The learner will have the knowledge about the principles of different types of media and able to identify the proper applications of multimedia, how multimedia can be used in various application areas, and evaluate the appropriate multimedia systems and develop effective multimedia applications.

COURSE OUTCOMES (COs)

CO1	Gain knowledge of basic concepts of multimedia
CO2	Analyze the multimedia application problems.
CO3	Discuss the Video capturing, Sound capturing, editing concepts.
CO4	Identify the basic multimedia design principles.
CO5	Demonstrate the multimedia system and Design Process
CO6	Test real time application using a multimedia concept.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	M	L								
	CO3	H	-								
	CO4	H	L								
	CO5	M	L								
	CO6	H	L								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
									✓	
4	Approval	Academic Council Meeting								

UNIT-1:

Multimedia Fundamentals: Define the concept of multimedia, fundamental criteria for the design of a multimedia presentation, multimedia application goals &objectives, opportunities in multimedia production, Role of multimedia development team members, avoiding problems in planning a multimedia application.

UNIT-2:

Multimedia Building Blocks: Text, Graphics, video capturing, Sound capturing, editing. Basic design principle: proximity, visual hierarchy, Symmetry / Asymmetry, Repetition, unity, Contrast, dynamics, Emphasis, Multimedia Authoring tools.

UNIT-3 :

Design, Development and evaluation of multimedia a system:The development of user interface design, Design Process,

REFERENCE BOOKS:

1. John Villamil-Casanova, Louis Molina, An introduction to multimedia
2. Mohammad Dastbaz, Desgning Interactive Multimedia Systems
3. Bohdan O. Szuprowicz, Multimedia Networking
4. Stephen McGloughlin, Multimedia on the web

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Syllabus Format for UG and PG Courses

BCA004	NETWORKING AND MAINTENANCE	L	T	P	C
	Total Contact Hours - 30	2	0	0	2
	Prerequisite course – Computer Science / Mathematics Studied in Higher Secondary Studies.				
	Course Coordinator Name &Department :- E.Srimathi/CS				

COURSE OBJECTIVES :-

Learners familiar with the basic concepts of Microprosser, Controller, Server and to demonstrate the traditional imperative design of CPUs, cards,PCs and BIOS.

COURSE OUTCOMES (COs)

CO1	Design the structure of Micro Processor and PCs and CPUs
CO2	Understand the structure of PC architecture and the study of various PCs
CO3	Understand the Basics of Processor
CO4	Study the Computer Organisation& Operating Systems(Windows And Linux) Types Of Computer
CO5	Working with Background And Number System
CO6	Used to develop the Backups, Switches Routers, BIOS, Floppy Disk and zip Driver

Mapping of Course Outcomes with Program outcomes (POs)
(H/M/L indicates strength of correlation) H-High, M-Medium, L-Low

1	COs/Pos	PO1	PO2	PO 3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	PSO 3
2	CO1	H	L						H		
	CO2	H	L								
	CO3	H	L								
	CO4	M	L								
	CO5	H	-								
	CO6	H	L								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship(PR)
							✓			
4	Approval	Academic Council Meeting								

UNIT -1 : COMPUTER HARDWARE

Computer Organizations and Operating Systems(Windows and Linux) , Basic Electrical Engineering and Electronics , Microprocessors , Computer Hardware , Internet and Viruses , Principles of Data Communication & Network Maintenance , Digital Fundamentals , Computer Assembling and Software Installations , Hardware Lab , Project

UNIT - 2: COMPUTER ORGANISATION & OPERATING SYSTEMS(WINDOWS AND LINUX) TYPES OF COMPUTER

Analog, Digital, and Hybrid type, Hardware, Software, System software, Application software, Stored Program Concept and Von Newman Architecture, Firm ware, Human ware, Stored Program Concept, Evolution of computers, Generation of computer.

UNIT- 3: BACKGROUND AND NUMBER SYSTEM

Information Representation and Codes, Data Types, Complements, Addition and Subtraction of Binary Numbers, Fixed Point and Floating Point Representation, Octal and Hexadecimal System , Conversion of Number Systems, Alpha Numeric Codes – ASCII & EBCDIC, Error Detection Codes, Building Blocks of Computers, Combinational Blocks (Gates, Multiplexes, Decoders, Encoders etc.), Sequential Building Blocks (Flip Flops, Registers, Counters, Random Access Memory, etc.)

REFERENCE BOOKS:

1. IBM PC and CLONES, B.Govindrajalu, Tata McGrawhill Publishers, IBM PC and CLONES
2. Computer Installation and Servicing, D.Balasubramanian, Tata McGraw Hill
3. Computer Installation and Servicing
4. The complete PC upgrade and Maintenance, Mark Minasi, BPB Publication, The complete PC upgrade and Maintenance
5. Troubleshooting, Maintaining and Repairing PCs, Stephen J Bigelow ,Tata MCGraw Hill Publication ,Troubleshooting Maintaining and Repairing PCs

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BCA006	WEB DESIGNING	L	T	P	C
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name & Department:- V.Ramya & BCA				

COURSE OBJECTIVES: -

To gain knowledge in basic web designing concepts.

COURSE OUTCOMES (COs)

CO1	Define the web basics and server side scripting.
CO2	Execute the HTML coding and linking process.
CO3	Analyze the hyperlinks and special characters.
CO4	Relate the Embedded Style Sheets & Linking External Style Sheets.
CO5	Use the backgrounds and user style sheets.
CO6	Test real time application using web designing concept.

Mapping of Course Outcomes with Program outcomes (POs) (1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO 7	PSO 1	PSO 2	PSO3
2	CO1	H	L							H	
	CO2	M	L								
	CO3	H	-								
	CO4	H	-								
	CO5	H	-								
	CO6	H	-								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core	Core Elective	Non-Major Elective (NE)	Open Elective	Any other	Project/Term Paper/ Seminar/ Internship(PR)
									✓	
4	Approval	Academic Council Meeting								

UNIT -1

Introduction, Syllabus, Calendar, Terminology, Files and Folders, Purchasing Domain/Hosting, Remote Hosting, FTP, HTML basics, Starting a Website, HTML Coding

UNIT-2

Terminology, Starting a Website, HTML Coding

UNIT-3

HTML Coding, Wireframe, Website Design/Development, FTP, Basics of CSS Coding, CSS Coding, Internal CSS

REFERENCE BOOKS:

1. Blanck, Peter. E Quality: The Struggle for Web Accessibility by Persons with Cognitive
2. Disabilities, Cambridge Disability Law and Policy Series, 2015.
3. Burgstahle, Sheryl. Universal Design in Higher Education: From Principles to Practice, Harvard Education Press, 2008.
4. Byrne, Jim. 60 hot to touch Accessible Web Design tips – the tips no web developer can live without!, Jim Byrne, 2006, (ISBN: 978-1-4116-6729-7).
5. Chisholm, and May. Universal Design for Web Applications: Web Applications That Reach Everyone, O'Reilly Media, 2008.
6. Clark, Joe. Building Accessible Websites, New Riders Publishing, 2002.

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BSC001	ANIMATION	L	T	P	C
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name & Department :- N.Mathimagal& BCA				

COURSE OBJECTIVES:-

The learner will have the knowledge about the use of animation, digitized sound, video control, and scanned images.

COURSE OUTCOMES (COs)

CO1	Gain knowledge of basic concepts of Animations
CO2	Analyze the use of Netscape to access the Course Home Page and Tips and Tricks. .
CO3	Discuss the basic instructional design principles in the development of stacks..
CO4	Identify the basic Formulate a working definition of interactive multimedia.
CO5	Demonstrate the competence in using the authoring program Hyper Studio.
CO6	Test real time application using a basic concept.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	CO1	H	L						H		
	CO2	M	L								
	CO3	H	-								
	CO4	H	L								
	CO5	M	L								
	CO6	H	L								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core	Core Elective (CE)	Non-Major Elective (NE)	Open Elective	Any other	Project/Term Paper/ Seminar/ Internship(PR)
									✓	
4	Approval	Academic Council Meeting								

UNIT - 1

INTRODUCTION:

Elements of Information Technology - Introduction to Programming Languages - Basics of Animation.-Foundation Art. -Computer Based 2D Animation. - Multimedia & Computer Graphics. Introduction to 3D Animation & Modeling- Introduction to Mass Communication & Media Literacy

UNIT - 2

3-D Animation-I.- Production Process-I. - Multimedia-I. - Composing and Editing. - Color Theory.

UNIT- 3

Script Writing-I. - Content Development Direction-I. - Gaming Technology - Digital Editing and Motion Graphics-I. - Visual Effects-I. - V.F.X.-I.

REFERENCE BOOKS :

1. Introduction to mass Communication : Medial Literacy & Culture By Stanley Baran The Tata McGraw Hill
2. The Media in your life - By Jean Folkerts& Stephen Lacy by Pearson Publications.

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BSC002	COMPUTER HARDWARE AND NETWORKING	L	T	P	C
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name & Department :- Ms.K.HemaLakshmi / CS				

COURSE OBJECTIVES :-

Learners familiar with the basic concepts of Microprocessor, Controller, Server and to demonstrate the traditional imperative design of CPUs,cards, PCs and BIOS.

COURSE OUTCOMES (COs)

CO1	Define the structure of Micro Processor and PCs and CPUs
CO2	State the structure of PC architecture and the study of various PCs
CO3	Describe the basics of Processor
CO4	Study the CPU, Chips, Processor and Controllers
CO5	Examine the working of Internal Components cards and Higher Level Processor
CO6	Relate the Backups, Switches Routers, BIOS, Floppy Disk and zip Driver

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
2	**CO1**	H	-						H		
	CO2	H	L								
	CO3	H	L								
	CO4	M	-								
	CO5	H	L								
	CO6	M	-								

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
									✓	
4	Approval	Academic Council Meeting								

UNIT-1

Microprocessor System Introduction of System overview, Introduction to Processors, Memory Interfacing, Interfacing I/O Devices, Interfacing Data Converters, Display Interface, Serial I/O and Data Communication, Higher level Processors

UNIT - 2

Introduction to PC Architecture Study of PC-AT/ATX System, Pentium, Core, Core 2 Cord, Core 2 Duo, I3, I5, I7 Processor Basics of Processor and CPU Block Diagram of Computer and Computer Generation Motherboards, Chipset and Controllers, BIOS and the Boot Process, Computer Memory.

UNIT-3

Internal Components IDE and SATA Devices: Hard Disk Drive and CD/DVDs Drives, SCSI Devices, Floppy Disk, Zip Drive, Backup Drive, Expansion Cards- LAN Card, IDE Card , VGA and SVGA Cards, Sound Card, Interface Cards, I/O cards, Video Cards, USB Card, Fire-Wire Cards, Internal Ports, Cables and Connector Types. Introduction of Network Cable like UTP, STP, Fiber Optics, Hub, Unmanageable Switch, Manageable Switch, Router, Modem, Wi-Fi, Access Point, PCI Wireless Card, USB Wireless Device, Print Server, USB Network Sharer, Backup Device, Server Hardware etc.

REFERENCE BOOK:

(1) Microprocessor Architecture Programming and Application with the 8085 Ramesh Gaonkar Penram International Publication.

(2) Electronics and Radio Engineering M.L. Gupta Dhanpatrai & Sons, New Delhi.

(3) PC AND CLONES Hardware, Troubleshooting and Maintenance B. Govindarajalu, Tata Mc-graw-Hill Publication.

(4) PC Troubleshooting and Repair Stephen J. Bigelow Dream tech Press, New Delhi

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BSC003	COMPUTER PROGRAMMING	L	T	P	C
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name & Department :- Ms.K.HemaLakshmi/ CS				

COURSE OBJECTIVES :-

Learners will be familiar with the programming language C, Algorithm,and Design the flowchart and implement the programs using the concept such asFunctions,Pointers and Strings.

COURSE OUTCOMES (COs)

CO1	Apply and Write the clear, structure and Looping of elementary C programs.
CO2	Explain algorithmic thinking and apply it to programming.
CO3	Describe problem-solving techniques.
CO4	Ability to use C with Various operators Expressions and Decision making control.
CO5	Write Code using Arrays with single dimensions, Two dimensions and Multidimensional and Various Strings operations
CO6	Examine programs using Functions, Pointers, Structures and Union

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
2	**CO1**	H	-						H	
	CO2	H	L							
	CO3	H	L							
	CO4	H	-							
	CO5	M	L							
	CO6	H	-							

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
									✓	
4	Approval	Academic Council Meeting								

UNIT-1:

Generation and Classification of Computers – Basic organization of a Computer – Number System –Binary – Decimal – Conversion – Problems. Need for logical Analysis and thinking algorithm – Pseudo code –Flow Chart.

UNIT-2: PROGRAMMING BASICS:

Problem formulation – Problem solving – introduction to "C" programming – Fundamentals – structure of C Program – compilation and linking processes – Constants, Variables – Data Types – Expressions using operators in C- Managing input and output operations – Decision making and Branching – Looping Statements – Solving simple scientific and statistical

problems.

UNIT -3: ARRAYS, STRINGS, FUNCTIONS AND STRUCTUES:

Arrays – Initialization – Declaration – One Dimensional and Two Dimensional Arrays – String –String Operations – String Arrays.Simple programs – sorting – searching – matrix operations. Function – definition of function – declaration of function – Recursion – pointers – pointer and arrays – example problems – need for structure data type – structure definition – structure declaration – structure within a structure – union - storage classes, pre-processor directives.

TEXT BOOKS:

1. Anita Goel and Ajay Mittal, "Computer Fundamentals and programming in C", Dorling Kindersley (India) Pvt Ltd., Pearson Education in South Asia 2011.
2. Pradip Dey, Manas Ghosh, "Fundamentals of Computing and Programming in c", First edition, Oxford University Press, 2009.
3. Yashavant P. Kanethar, "Let Us C", BPB Publications, 2011.

REFERENCE BOOKS:

1. Byron S Gottfried, " Programming with C", Schaum's Outlines, Second Edition, Tata McGraw-Hill 2006.
2. Dromey R.G., How to Solve it by Computer", Pearson Education, Fourth Reprint, 2007.
3. Kernighan., B.W and Ritchie, D.M, " The C Programming Lanaguage", Second Edition, Pearson Education, 2006.

Bharath Institute of Higher Education and Research

Syllabus Format for UG and PG Courses

BSC004	COMPUTER TECHNOLOGY	L	T	P	C
	Total Contact Hours – 30	2	0	0	2
	Prerequisite course – Higher Secondary Level				
	Course Coordinator Name & Department :- Ms.K.HemaLakshmi/ CS				

COURSE OBJECTIVES :-

Learners will be Explore and demonstrate knowledge of how to maintain computer equipment and solvecommon hardware problems

COURSE OUTCOMES (COs)

CO1	Design, implement and evaluate computer technologies.
CO2	Think critically, creatively and analytically in developing technological solutions to simpleand complex problems. .
CO3	Plan, analyze, design and construct information systems to identified specifications.
CO4	Ability to efficient code in the relevant programming language(s). .
CO5	Evaluate, and use computer software. Use software tools for creating, finding, organizing, and communicating information.
CO6	Work effectively as a team member to achieve a common stated goal.

Mapping of Course Outcomes with Program outcomes (POs)
(1/2/3 indicates strength of correlation) 3-High, 2-Medium, 1-Low

1	COs/Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
2	**CO1**	H	-						H	
	CO2	H	L							
	CO3	H	L							
	CO4	H	-							
	CO5	M	L							
	CO6	H	-							

3	Category	Humanities & Social Studies (HS)	Basic Sciences (BS)	Engg Sciences (ES)	Professional Core (PC)	Core Elective (CE)	Non-Major Elective (NE)	Open Elective (OE)	Any other	Project/Term Paper/ Seminar/ Internship (PR)
									✓	

4	Approval	Academic Council Meeting

UNIT - 1

Digital Logic: Logic functions, Minimization, Design and synthesis of combinational and sequential circuits; Number representation and computer arithmetic (fixed and floating point). Computer Organization and Architecture: Machine instructions and addressing modes, ALU and data-path, CPU control design, Memory interface, I/O interface (Interrupt and DMA mode), Instruction pipelining, Cache and main memory, Secondary storage. Programming and Data Structures: Programming in C; Functions, Recursion, Parameter passing, Scope, Binding; Abstract data types, Arrays, Stacks, Queues, Linked Lists, Trees, Binary search trees, Binary heaps

UNIT - 2

Algorithms: Analysis, Asymptotic notation, Notions of space and time complexity, Worst and average case analysis; Design: Greedy approach, Dynamic programming, Divide-and-conquer; Tree and graph traversals, Connected components, Spanning trees, Shortest paths; Hashing, Sorting, Searching. Asymptotic analysis (best, worst, average cases) of time and space, upper and lower bounds, Basic concepts of complexity classes – P, NP, NP-hard, NP-complete.

UNIT -3

Theory of Computation: Regular languages and finite automata, Context free languages and Push-down automata, Recursively enumerable sets and Turing machines, Undecidability. Compiler Design: Lexical analysis, Parsing, Syntax directed translation, Runtime environments, Intermediate and target code generation, Basics of code optimization. Operating System: Processes, Threads, Inter-process communication, Concurrency, Synchronization, Deadlock, CPU scheduling, Memory management and virtual memory, File systems, I/O systems, Protection and security. Databases: ER-model, Relational model (relational algebra, tuple calculus), Database design (integrity constraints, normal forms), Query languages (SQL), File structures (sequential files, indexing, B and B+ trees), Transactions and concurrency control.

REFERENCE BOOKS:

1. A First Course in Computers" by Sanjay Sexena
2. Computer Organization and Architecture – Carl Hamcher & Safat Zaky
3. Computer Architecture and Organization – J. P. Hayes