KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

COIMBATORE – 641 029

B.Sc. MATHEMATICS CURRICULUM AND SCHEME OF EXAMINATIONS (CBCS)

(APPLICABLE TO STUDENTS ADMITTED DURING THE ACADEMIC YEAR 2018-2019 & ONWARDS)

Semester	Subject Code/ Question Paper Code	Part		Title of the Paper	Instruction Hours	Exam. Marks			$ Duration of Exam.	Credits
						CIA	ESE	Total		
I	18TML101@	I	**LAN**	Tamil I/ Hindi I / Malayalam I/ French I /Sanskrit I	6	25	75	100	3	3
	18ENG101	II	**LAN**	English I	6	25	75	100	3	3
	18UMA101	III	**CP 1**	Classical Algebra	4	25	75	100	3	4
	18UMA102	III	**CP 2**	Calculus	5	25	75	100	3	4
	18UMA1I1	III	**AP A1**	Statistics I	7	25	75	100	3	5
	18EVS101	IV	**EVS**	Environmental Studies**	2	-	50	50	3	2
				Total	**30**			**550**		**21**
II	18 TML202 @	I	**LAN**	Tamil II/ Hindi II / Malayalam II/ French II/Sanskrit II	6	25	75	100	3	3
	18ENG202	II	**LAN**	English II	6	25	75	100	3	3
	18UMA203	III	**CP 3**	Differential Equations and Laplace Transforms	4	25	75	100	3	4
	18UMA204	III	**CP 4**	Trigonometry, Vector calculus and Fourier Series	5	25	75	100	3	4
	18UMA2I2	III	**AP A2**	Statistics II	7	25	75	100	3	5
	18VED201	IV	**VED**	Value Education -Moral and Ethics**	2	-	50	50	3	2

				Total	**30**			**550**		**21**
III	18TML303[@]	I	**LAN**	Tamil III/ Hindi III / Malayalam III/ French III/ Sanskrit III	6	25	75	100	3	3
	18ENG303	II	**LAN**	English III	6	25	75	100	3	3
	18UMA305	III	**CP 5**	Analytical Geometry	4	25	75	100	3	4
	18UMA306	III	**CP 6**	Statics	3	25	75	100	3	4
	18UPH3A1	III	**AP B1**	Physics I Theory	5	20	55	75	3	4
	-	III	**APr 1**	Physics I Practical	2	-	-	-	-	-
	18UGA3S1	IV	**SBS 1**	General Awareness	2	25	75	100	3	3
	18TBT301 / 18TAT301/ 18UHR3N1		**NMEP 1**	Basic Tamil * / Advanced Tamil **/ Non - Major Elective Paper- I **	2	-	75	75	3	2
				Total	**30**			**650**		**23**
IV	18TML404 [@]	I	**LAN**	Tamil IV/ Hindi IV / Malayalam IV / French IV/Sanskrit IV	6	25	75	100	3	3
	18ENG404	II5	**LAN**	English IV	6	25	75	100	3	3
	18UMA407	III	**CP 7**	Graph Theory	3	25	75	100	3	4
	18UMA408	III	**CP 8**	Dynamics	4	25	75	100	3	4
	18UPH4A2	III	**AP B2**	Physics II – Theory	5	20	55	75	3	4
	18UPH4AL	III	**A Pr 1**	Physics – Practical	2	20	30	50	3	2
	18UMA4S2	IV	**SBS 2**	Theory of Numbers	2	25	75	100	3	3
	18TBT402 / 18TAT402 / 18WHR4N2	IV	**NMEP 2**	Basic Tamil * / Advanced Tamil **/ Non - Major Elective Paper- II **	2	-	75	75	3	2

				Total	**30**			**700**		**25**
V	18UMA509	III	**CP 9**	Real Analysis I	5	25	75	100	3	3
	18UMA510	III	**CP 10**	Complex Analysis I	6	25	75	100	3	4
	18UMA511	III	**CP 11**	Modern Algebra I	6	25	75	100	3	4
	18UMA512	III	**CP 12**	Programming in C- Theory	4	25	75	100	3	3
	18UMA5CL	III	**C Pr 1**	Programming in C- Practical	2	40	60	100	3	2
	18UMA5E1	I	**MEP 1**	Major Elective Paper	5	25	75	100	3	5
	18UMA5S3	IV	**SBS 3**	Fundamentals of LaTeX- Theory	2	25	75	100	3	3
				Total	**30**			**700**		**24**
VI	18UMA613	III	**CP 13**	Real Analysis II	6	25	75	100	3	4
	18UMA614	III	**CP 14**	Complex Analysis II	6	25	75	100	3	4
	18UMA615	III	**CP 15**	Modern Algebra II	6	25	75	100	3	4
	18UMA6E2	III	**MEP 2**	Major Elective Paper	5	25	75	100	3	5
	18UMA6E3	III	**MEP 3**	Major Elective Paper	5	25	75	100	3	5
	18UMA6S4	IV	**SBS 4**	Fundamentals of LaTeX - Practical	2	25	75	100	3	3
	$$	V	**EA**	Extension Activity* (NSS / NCC /PYE/YRC etc)	-	50	-	50	-	1
				Total	**30**			**650**		**26**
					TOTAL			**3800**		**140**

CP 3 - Differential Equations and Laplace Transforms

Course Objectives

1. To solve second-order linear differential equations with constant and variable coefficient.
2. To get the ability of solving first and second order ordinary differential equations and first order partial differential equations.
3. To get the knowledge about Laplace and inverse Laplace transforms.

Course Outcomes (CO)

K1 CO1 Recalling the concept of first order linear differential equations.

K2 CO2 Understanding the concept of first order higher degree ordinary differential equations

K3 CO3 Solving Linear partial differential equations by using the Lagrange's method.

K4 CO4 Analyzing the concepts of Laplace transforms and inverse Laplace transforms to solve ODE with constant coefficients.

UNIT I

Linear equations with Constant Coefficients : Complementary function of a linear equation with constant coefficients – Particular integral of $f(X)= e^{mx}$, sin mx, cosmx , x^m, $X.e^{mx}$– Linear equations with variable coefficients- Equations reducible to linear equations.

UNIT II

Ordinary differential equations : Equations of the First order but of higher degree : Equations solvable for p – Equations solvable for x – Equations solvable for y – Clairaut's form– Methods for solving dx/P = dy/Q = dz/R conditions of integrability – Simultaneous linear differential equations of the form $f_1(D)x + \phi_1(D)y = T_1$ $f_2(D)x + \phi_2(D)y = T_2$ where f_1, f_2, ϕ_1 and ϕ_2 are rational integral functions of D=d/dt with constant coefficients and T_1 and T_2 are explicit functions of t.

UNIT III

Partial differential equations of the first order : **Eliminating arbitrary constants and arbitrary functions*** –Definition of general, particular and complete solutions – Singular and general solutions of first order equations in the standard form f(p, q)=0,f(z, p,q) =0, f(x,p,q)=0,f(y,p,q)=0, $f_1(x, p) = f_2(y, q)$, z = p(x) + q(y) +f(p, q) - Lagrange's method of solving the linear partial differential equation Pp + Qq =R.

UNIT IV

Laplace Transforms: Definition –Transforms of e^{at}, cos at, sin at and t^n where n is an integer. First shifting theorem – Laplace transforms of e^{at} sin bt, e^{at} cos bt, and e^{at} t^n. Theorems of $L\{f_1(t)\}$, $L\{f_n(t)\}$- Laplace Transform of periodic functions.

UNIT V

Inverse Laplace transformation – Application of Laplace transform to solution of

differential equations with constant coefficients

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Text Books

S.Narayanan and T.K.Manickavachagam Pillai, “Differential Equations and its Applications”,
S.Viswanathan (Printers and Publishers) Pvt. Ltd, Chennai, 2014.