



SACRED HEART COLLEGE (AUTONOMOUS)

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Ready for
Every Good Work

A Don Bosco Institution of Higher Education, Founded in 1951 * Affiliated to Thiruvalluvar University, Vellore * Autonomous since 1987

Accredited by NAAC (4th Cycle – under RAF) with CGPA of 3.31 / 4 at 'A+' Grade

Sacred Heart College (Autonomous), Tirupattur District

1.2.1 List of New Courses

MCA

(Master of Computer Applications)

Sem	Code	Subject Name	L	T	TCP	P	IM	SM	TM	CD
I	MCA140T	Programming in C	4				40	60	100	5
	MCA141T	Internet Concepts and Web Design	4	1			40	60	100	4
	MCA142T	Computer Organization and Architecture	4	1			40	60	100	4
	MCA143T	Business Process	4		2		40	60	100	5
	MCA144P	Practical: C				5	40	60	100	3
	MCA145P	Practical: Web Programming				5	40	60	100	3
			16	2	2	10	240	360	600	24
II	MCA240T	Optimization Techniques	4	1			40	60	100	4
	MCA241T	Object Oriented Programming with C++	3	1			40	60	100	3
	MCA242T	Data Structures	3	1			40	60	100	3
	MCA243T	Operating Systems	4		1		40	60	100	5
	MCA244P	Practical: C++				6	40	60	100	3
	MCA245P	Practical: Data Structures				6	40	60	100	3
			14	3	1	12	240	360	600	22
III	MCA340T	Computer Networks	3	1			40	60	100	4
	MCA341T	Database Management Systems	3				40	60	100	3
	MCA342T	Software Engineering	3	1			40	60	100	4
	MCA343T	Enterprise Applications with Java	3				40	60	100	3
	MCA344T	XML and Web Services	4		1		40	60	100	5
	MCA345P	DBMS Practical				6	40	60	100	3

	MCA346P	Java Practical				6	40	60	100	3
			18	2	1	12	320	480	800	25
IV	MCA440T	Linux and Network Programming	5		1		40	60	100	5
	MCA441T	Enterprise Applications using .NET	3				40	60	100	3
	MCA442T	Software Testing and Quality Assurance	4				40	60	100	3
	MCA443T	Design and Analysis of Algorithms	3	1			40	60	100	4
	MCA444#	Elective I	3	1			40	60	100	3
	MCA445P	.NET Practical				4	40	60	100	3
	MCA446J	Software Project I				4		100	100	4
	VE1003	Human Rights in India	2				40	60	100	1
			18	2	1	8	240	460	700	26
V	MCA540T	Computer Graphics and Animation	5		1		40	60	100	5
	MCA541T	Data and Information Security	3	2			40	60	100	3
	MCA542T	Open Source Technologies	4				40	60	100	3
	MCA543#	Elective II	3		2		40	60	100	3
	MCA544#	Elective III	3				40	60	100	3
	MCA545P	Open Source Practical				4	40	60	100	3
	MCA546J	Software Project II				6		100	100	4
			18	2	3	10	240	460	700	24
VI	MCA640J	Software Project III				30		100	100	15
						30		100	100	15
* Total Credits										135

MCA Programme Structure for Lateral Entry Students

Sem	Code	Subject Name	L	T	TCP	P	IM	SM	TM	CD
III	MCA340T	Computer Networks	3	1			40	60	100	4
	MCA341T	Database Management Systems	3				40	60	100	3
	MCA342T	Software Engineering	3	1			40	60	100	4
	MCA343T	Enterprise Applications with Java	3				40	60	100	3
	MCA344T	XML and Web Services	4		1		40	60	100	5
	MCA345P	DBMS Practical				6	40	60	100	3
	MCA346P	Java Practical				6	40	60	100	3

			18	2	1	12	320	480	800	25
IV	MCA440T	Linux and Network Programming	5		1		40	60	100	5
	MCA441T	Enterprise Applications using .NET	3				40	60	100	3
	MCA442T	Software Testing and Quality Assurance	4				40	60	100	3
	MCA443T	Design and Analysis of Algorithms	3	1			40	60	100	4
	MCA444#	Elective I	3	1			40	60	100	3
	MCA445P	.NET Practical				4	40	60	100	3
	MCA446J	Software Project I				4		100	100	4
	VE1003	Human Rights in India	2				40	60	100	1
			18	2	1	8	240	460	700	26
V	MCA540T	Computer Graphics and Animation	5		1		40	60	100	5
	MCA541T	Data and Information Security	3	2			40	60	100	3
	MCA542T	Open Source Technologies	4				40	60	100	3
	MCA543#	Elective II Statistical and Numerical Methods	3		2		40	60	100	3
	MCA544#	Elective III	3				40	60	100	3
	MCA545P	Open Source Practical				4	40	60	100	3
	MCA546J	Software Project II				6		100	100	4
			18	2	3	10	240	460	700	24
VI	MCA640J	Software Project III				30		100	100	15
						30		100	100	15
* Total Credits										90

Sacred Heart College (Autonomous), Tirupattur District

1.2.1 List of New Courses

Department: MCA

SYLLABUS

Semester IV

ELECTIVE I: STATISTICAL AND NUMERICAL METHODS - MCA444A

S. No	Course Code	Course Name
1.	MCA444A	Statistical and Numerical Methods

OBJECTIVES:

- This course aims at providing the necessary basic concepts of a few statistical and numerical methods and give procedures for solving numerically different kinds of problems occurring in engineering and technology.

1. LARGE SAMPLES AND SMALL SAMPLES T-TEST

Population – Sampling distribution – Central Limit Theorem – Test of hypothesis – Large sample tests – Confidence interval – Determination of sample size – Small sample t-test – Test for a specified mean – t-test for paired observations – Confidence interval for small samples.

2. SMALL SAMPLES – F TEST AND CHI-SQUARE TEST

F-test for two sample standard deviations – ANOVA: One way classification – Two way classification – Chi-square test: Uses – Chi-square test for a specified population variance – Chi-square test for independence of attributes and goodness of fit – Comparing two populations.

3. SOLUTION OF EQUATIONS AND EIGENVALUE PROBLEM

Newton Raphson method – Gauss elimination method – pivoting – Gauss Jordan methods – Iterative methods of Gauss Jacobi and Gauss Seidel – Matrix inversion by Gauss Jordan method.

4. INTERPOLATION, NUMERICAL DIFFERENTIATION AND NUMERICAL INTEGRATION

Newton's forward and backward difference interpolation – Lagrange's and Newton's divided difference interpolations – Approximation of derivatives using interpolation polynomials – Numerical single and double integrations using Trapezoidal and Simpson's 1/3 rules.

5. NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS

Taylor's series method – Euler's method – Modified Euler's method – Fourth order Runge-Kutta method for solving first order equations – Milne's predictor corrector methods for solving first order equations – Finite difference methods for solving second order equations.

TEXT BOOKS

P. R. Vittal, "Quantitative Techniques" (for M. Com, M.B.A and others), Margham Publications, Chennai, Reprint 2013.

UNIT 1: (Chapters 7 and 9)

UNIT 2: (Chapters 10 and 11)

B. S. Grewal and J. S. Grewal, "Numerical methods in Engineering and Science", 6th Edition, Khanna Publishers, New Delhi, 2004.

UNIT 3: (Chapters 2, 3, 4: 2.11, 3.4 (3-4), 3.5, 4.4 and 4.11).

UNIT 4: (Chapters 7, 8: 7.1-7.3, 7.12, 7.14, 8.2, 8.4, 8.5 (1-3)).

UNIT 5: Chapter 10: 10.3-10.5, 10.7-10.9, 10.17).

REFERENCE BOOKS

1. A.D. Aczel and J. Sounderpandian, Complete Business Statistics, 6-e, Tata McGraw Hill, 2004.

2. S. C. Chapra and R.P. Canale, "Numerical Methods for Engineers", 5th Edition, Tata McGraw-Hill, New Delhi, 2007.

3. S. P. Gupta & M. P. Gupta, Business Statistics, 14th enlarged edition, Sultan chand and sons, educational publishers, New Delhi, reprint 2007.

4. C. F. Gerald and P. O. Wheatley, "Applied Numerical Analysis", 6th Edition, Pearson Education Asia, New Delhi, 2006.

WEB RESOURCES

www.e-booksdirectory.com/mathematical-statistics,

www.math.ust.hk/~machas/numerical-methods.pdf