ANNEXURE 18D02
V.V. VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

CHOICE BASED CREDIT SYSTEM
REGULATIONS AND SYLLABUS
(with effect from Academic Year 2018 - 2019)

V.V. Vanniaperumal College for Women, Virudhunagar, established in 1962, offers 19 UG Programmes, 14 PG Programmes, 6 M.Phil. Programmes and 3 Ph.D. Programmes. All these programmes, except Ph.D. Programmes, have been framed as per the guidelines given by UGC under Choice Based Credit System (CBCS).

The Departments of Commerce, English and History upgraded as Research Centres offer Ph.D. Programmes as per the norms and regulations of Madurai Kamaraj University, Madurai and do not come under the purview of CBCS.

CHOICE BASED CREDIT SYSTEM (CBCS)

Choice based credit system is followed as per the guidelines formulated by the UGC. The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising Core, Elective and Skill Enrichment Courses. The performance of students is evaluated based on the uniform grading system. The uniform grading system will also enable potential employers in assessing the performance of the candidates. Computation of the Cumulative Grade Point Average (CGPA) is made to ensure uniformity in evaluation system.

List of Programmes in which CBCS/Elective Course System is implemented

UG PROGRAMMES

Arts & Humanities	:	History (E.M. & T.M.), English and Tamil
Physical & Life Sciences	:	Mathematics, Zoology, Chemistry, Physics, Biochemistry, Home Science - Nutrition and Dietetics, Costume Design and Fashion, Microbiology, Biotechnology, Computer Science, Information Technology and Computer Applications.
Commerce & Management	:	Commerce, Commerce with Computer Applications, Commerce with Professional Accounting, Business Administration.

PG PROGRAMMES

Arts & Humanities	:	History, English, Tamil.
Physical & Life Sciences	:	Mathematics, Physics, Biochemistry, Food Processing & Quality Control, Chemistry, Zoology, Computer Science, Information Technology, Computer Applications (MCA*)
Commerce & Management	:	Commerce, Business Administration (MBA*)
		* AICTE approved Programmes

PRE-DOCTORAL PROGRAMMES (M.Phil.)

Arts &Humanities	:	History, English, Tamil
Physical & Life Sciences	:	Mathematics, Biochemistry
Commerce & Management	:	Commerce

OUTLINE OF CHOICE BASED CREDIT SYSTEM (UG)

1. Core Courses
2. Elective Courses
    - 2.1. Discipline Specific Elective Courses (DSEC)
    - 2.2. Dissertation / Project
3. Non Major Elective Courses (NMEC)
4. Generic Elective Courses (GEC)
5. Ability Enhancement Courses (AEC)
    - 5.1 Ability Enhancement Compulsory Courses (AECC)
    - 5.2. Skill Enhancement Courses (SEC)

List of Non Major Elective Courses (NMEC) Offered

UG PROGRAMMES

Name of the Course	Semester	Department
History of India upto A.D.1858	III	History(EM)
இந்திய வரலாறு கி.பி. 1858 வரை	III	History (TM)
Indian National Movement (A.D 1885-1947)	IV	History(EM)
இந்திய தேசிய இயக்கம் (கி.பி. 1885 – 1947)	IV	History(TM)
English for Professions I	III	English
English for Professions II	IV	
இக்காலநீதி இலக்கியம்	III	Tamil
உரைநடை இலக்கியம்	IV	
Basic Hindi - I	III	Hindi
Basic Hindi - II	IV	
Practical Banking	III	Commerce
Basic Accounting Principles	IV	
Business Management	III	Business Administration
Entrepreneurship	IV	
Quantitative Aptitude – I	III	Mathematics
Statistics and Operation Research	IV	
Physics in Everyday life	III	Physics
Fundamentals of Electronics	IV	
Industrial Chemistry	III	Chemistry
Drugs and Natural Products	IV	
Applied Zoology	III	Zoology
Animal Science	IV	
Basic Food Science	III	Home Science – Nutrition and Dietetics
Basic Nutrition and Dietetics	IV	
Women and Health	III	Biochemistry
Life style associated disorders	IV	
Medical Lab Technology	III	Microbiology
Applied Microbiology	IV	
Infectious Diseases	III	Biotechnology
Organic Farming	IV	
Basics of Fashion	III	Costume Design And Fashion
Interior Designing	IV	
Introduction to Computers and Office Automation	III	Computer Science
Introduction to Internet and HTML 5	IV	
Computer Fundamentals and E-mail	III	Information Technology
Introduction to HTML	IV	
Fundamentals of Computers	III	Computer Applications
Web Design with HTML	IV	
Horticulture – I	III	Botany
Horticulture – II	IV	
மருத்துவ தாவரவியல் - I	III	
மருத்துவ தாவரவியல் - II	IV	
Library and Information Science – I	III	Library Science
Library and Information Science - II	IV	

List of Generic Elective Courses (GEC) Offered

GENERIC ELECTIVE COURSES – 1

1. Human Rights/
2. Women Studies

GENERIC ELECTIVE COURSES – 2

1. Constitution of India/
2. Modern Economics/
3. Adolescent Psychology/
4. Disaster Management

ABILITY ENHANCEMENT COMPULSORY COURSES (AECC)

1. Environmental Studies
2. Value Education

ELIGIBILITY FOR ADMISSION

Candidate should have passed the Higher Secondary Examination with 10+2 pattern conducted by the Board of Higher Secondary Education, Govt. of Tamil Nadu or any other examination accepted by the Syndicate as equivalent thereto and the candidate should have studied +2 level Mathematics in the 10+2 pattern.

DURATION OF THE PROGRAMME

The candidates shall undergo the prescribed course of study for a period of three academic years (six semesters)

MEDIUM OF INSTRUCTION

English

COURSES OFFERED

Part I : Tamil/Hindi

Part II : English

Part III : Core Courses

Elective Courses: Discipline Specific Electives Courses

Allied Courses: 1. Digital Electronics

2. Mathematics

Part IV: Non-Major Elective Courses (NMEC)

Generic Elective Courses (GEC)

Ability Enhancement Compulsory Courses (AECC)

Skill Enhancement Courses (SEC)

Part V : National Service Scheme, Physical Education, Youth Red Cross Society, Red Ribbon Club, Science Forum, Eco Club, Library and Information Science, Consumer Forum, Health and Fitness Club, National Cadet Corps

EVALUATION SCHEME

Components	Internal Assessment Marks	External Examination Marks	Total Marks
Theory	25	75	100
Practical	40	60	100

PART III - Core Courses, Discipline Specific Elective Courses & Allied Courses

INTERNAL ASSESSMENT

Distribution of Marks

Theory

Mode of Evaluation		Marks
Periodic Test	:	15
Assignment	:	5
Quiz	:	5
Total	**:**	**25**

Three Periodic Tests - Average of the best two will be considered
Two Assignments - Better of the two will be considered
Three Quiz Tests - Best of the three will be considered

Practical

Mode of Evaluation		Marks
Three tests (Best two average)	:	30
Performance	:	5
Record	:	5
Total	**:**	**40**

Question Pattern for Periodic Tests **Duration: 2 Hours**

Section	Type of Question	No. of Questions	No. of Questions to be answered	Marks for each question	Total Marks
A Q. No.(1- 4)	Multiple choice	4	4	1	4
B Q. No.(5 - 7)	Either or type	3	3	7	21
C Q. No.(8-10)	Open Choice	3	2	10	20
				Total	**45**

EXTERNAL EXAMINATION
For Core Courses, Discipline Specific Electives Courses and Allied Courses

Question Pattern for External Examination **Duration: 3 Hours**

Section	Type of Question	No. of Questions	No. of Questions to be answered	Marks for each question	Total Marks
A Q. No.(1- 10)	Multiple choice (At least Two question from each unit)	10	10	1	10
B Q. No.(11 -15)	Either or type (one set from each unit)	5	5	7	35
C Q. No.(16-20)	Open Choice (one from each unit)	5	3	10	30
				Total	**75**

CORE COURSES ASSESSMENT
Online Test will be conducted for the Core Courses in V & VI Semester.

Multiple Choice questions Pattern will be followed.

PART IV - Skill Enhancement Courses and Non Major Elective Courses

INTERNAL ASSESSMENT

Distribution of Marks

Theory

Mode of Evaluation		Marks
Periodic Test	:	25
Assignment	:	10
Quiz	:	5
Total	**:**	**40**

Three Periodic tests - Average of the best two will be considered
Two Assignments - Better of the two will be considered
Three Quiz Tests - Best of the three will be considered

Question Pattern **Duration: 1 Hour**

Section	Type of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A Q. Nos.1- 4	Open Choice	4	3	5	15
B Q. Nos.5- 6	Open Choice	2	1	10	10
				Total	**25**

EXTERNAL EXAMINATION

Question Pattern **Duration: 2 Hours**

Section	Type of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A Q. Nos.1- 8	Open Choice	8	6	5	30
B Q. Nos.9- 13	Open Choice	5	3	10	30
				Total	**60**

PART IV - Generic Electives and Ability Enhancement Compulsory Courses

- Assessment by Internal Examiner only
- Model Examination is conducted after two periodic tests.
- Book and Study Material prepared by the Faculty Members of the respective departments will be prescribed.

ASSESSMENT PATTERN

Mode of Evaluation		Marks
Periodic Test	:	30
Assignment	:	10
Model Examination	:	60
Total	**:**	**100**

Two Periodic tests - Better of the two will be considered
Two Assignments - Better of the two will be considered

Question Pattern for Periodic Test **Duration: 1 Hour**

Section	Type of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A Q. Nos.1- 4	Open Choice	4	3	6	18
B Q. Nos.5- 6	Open Choice	2	1	12	12
				Total	**30**

Question Pattern for Model Examination **Duration: 2 Hours**

Section	Type of Question	No. of Questions	No. of Questions to be answered	Marks for each Question	Total Marks
A Q. Nos.1- 8	Open Choice	8	5	6	30
B Q. Nos.9- 13	Open Choice	5	3	10	30
Total					**60**

ELIGIBILITY FOR THE DEGREE

1. The candidate will not be eligible for degree without completing the prescribed Courses of study and a minimum Pass marks in all the Courses.
2. Attendance, progress and conduct certification from the Head of the Institution will be required for the students to write the examination.
    - No Pass minimum for Internal Assessment.
    - Pass minimum for External Examination is 27 marks out of 75 marks for Core Courses, Allied Courses and Discipline Specific Elective Courses.
    - Pass minimum for External Examination is 21 marks out of 60 marks for Non Major Elective Courses and Skill Enhancement Courses.
    - The aggregate minimum pass percentage is 40.
    - Pass minimum for External Practical Examination is 21 marks out of 60 marks.
    - Pass minimum for Generic Elective Course and Ability Enchantment Compulsory Course is 40.

BACHELOR OF INFORMATION TECHNOLOGY
PROGRAM CODE - 2025

PROGRAMME OUTCOMES

- Encourage intellectually disciplined process of thinking in analyzing, synthesizing, evaluating and applying scientific concepts.
- Develop good rapport with fellow-beings through efficient oral, written and technical communication.
- Connect with the society to transform ideas into action.
- Volunteer support in spreading scientific temperament and stand for the national cause in all core issues.
- Uphold the values and beliefs inherent in the nation's tradition and culture.
- Strive to preserve nature in all forms for a sustainable future.
- Develop an independent and self-disciplined specialized learning in tune with the changing socio-technological scenario

PROGRAMME SPECIFIC OUTCOMES

PSO1:Acquiring the Knowledge of Components of Information Technology: Obtain the knowledge of the components of Information Technology incorporating Hardware, Software, Database and Network to manage the hardware and software components in acomputer independently.

PSO2:Understanding the Current Technology: Gain Ability to familiarize the latest trends in technological development and thereby applying standard Software Engineering practices and strategies in software project development using opensource platforms to deliver a best quality product.

PSO3: Applying Modern Tools on Developing Solutions: Create, select, and apply appropriate techniques, resources and IT tools including current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, Networking, Web systems and technologies with an understanding of the limitations.

PSO4:Enhancing Communication and Team Work Skills: As an individual and as a member or a leader in diverse teamslearns by working cooperatively, creatively and responsibly.

PSO5:Acquiring Knowledge in Programming Languages: Impart knowledge of software managed in a computer to analyse and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics and networking to apply for computer-based systems of varying complexity.

PSO6:Career Development: Emerge as an entrepreneur to provide software based solutions byapplying the knowledge of technology, ethics, management principles and soft skills to carry out societal IT projects in assorted environments.

PSO7: Contribution for the Society Needs: Impart the knowledge of modern computer languages and technologies for the welfare of society by contributing team work skills and multidisciplinary techniques to the computer industries.

PSO8:Integrating Higher Education: Acquire a solid foundation on Information Technology by producing a pathway to pursue higher education.

PSO9: Life Long Learning: Recognize the need to engage in lifelong learning through continuing education and research in the broadest context of technological changes.

V.V. VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

PART I-TAMIL

S.No.	Sem.	Code	Title of Paper	Credits	Marks
1.	I	18UTAG11	தாள்: 1 பொதுத்தமிழ்	3	100
2.	II	18UTAG21N	தாள்: 2 பொதுத்தமிழ்	3	100
3.	III	18UTAG31C	தாள்: 3 கணினித் தமிழ் I	3	100
4.	IV	18UTAG41C	தாள்: 4 கணினித் தமிழ் II	3	100
			Total	**12**	**400**

PART I –HINDI

S.No.	Sem.	Code	Title of the Course	Credits	Marks
1.	I	18UHDG11	Prose – I & II, Ancient Stories - I, General Essays, Functional Hindi – I & Grammar	3	100
2.	II	18UHDG21	Drama, Ancient Stories - II, Letter Correspondence, Functional Hindi-II & Grammar	3	100
3.	III	18UHDG31	Ancient Poetry, Drama, Indian History, Hindi Grammar & Functional Hindi III	3	100
4.	IV	18UHDG41	Modern Poetry, Hindi Literary Essays, Letter Correspondence, Conversation & Functional Hindi IV	3	100
			Total	**12**	**400**

PART II

S.No.	Sem.	Code	Title of the Course	Credits	Marks
1.	I	18UENG11A	English for Advanced Learners I	3	100
		18UENG11B	English for Career Guidance - I		
		18UENG11C	English for Communicative Competence-I		
2.	II	18UENG21A	English for Advanced Learners II	3	100
		18UENG21B	English for Career Guidance - II		
		18UENG21C	English for Communicative Competence - II		
3.	III	18UENG31A	English for Advanced Learners III	3	100
		18UENG31B	English for Career Guidance – III		
		18UENG31C	English for Communicative Competence - III		
4.	IV	18UENG41A	English for Advanced Learners IV	3	100
		18UENG41B	English for Career Guidance – IV		
		18UENG41C	English for Communicative Competence - IV		
			Total	**12**	**400**

PART III – CORE COURSES, DISCIPLINE SPECIFIC ELECTIVE COURSES

S.No.	Sem.	Code	Title of the Course	Credits	Marks
1	I	18UITC11	Introduction to IT and Programming in C	4	100
2	I	18UITC11P	Programming in C lab	3	100
3	II	18UITC21	Advanced Concepts in C and Data Structures	4	100
4	II	18UITC21P	Data structures lab using C	3	100
5	III	18UITC31	Data Base Management Systems	4	100
6	III	18UITC32	Operating Systems	3	100
7	III	18UITC31P	RDBMS Lab	2	100
8	IV	18UITC41	PHP and MYSQL	4	100
9	IV	18UITC41P	Web Design using PHP Lab	2	100
10	V	18UITC51	Java Programming	5	100
11	V	18UITC52	Computer Networks	5	100
12	V	18UITC53	Computer Algorithms	5	100
13	V	18UITC51P	Java Programming lab	2	100
14	V	18UITO51	Core Course Assessment-Online	1	50
15	V	18UITE51/ 18UITE52/ 18UITE53	Cloud Computing / Information Security / Information Retrieval	4	100
16	V	18UITE51P/ 18UITE52P	VB.NET Programming Lab/ Computer Graphics Programming Lab	2	100
17	VI	18UITC61	Mobile Computing	5	100
18	VI	18UITC62	Data Mining	5	100
19	VI	18UITC63	Software Engineering	5	100
20	VI	18UITC61PR	Project	2	100
21	VI	18UITO61	Core Course Assessment-Online	1	50
22	VI	18UITE61/ 18UITE62/ 18UITE63	Embedded System/ Wireless Adhoc Networks/ Cyber Security	4	100
23	VI	18UITE61P 18UITE62P	Android Programming Lab/ Linux Programming Lab	2	100
			Total	**77**	**2200**

PART III – ALLIED COURSES

S.No.	Sem.	Code	Title of the Course	Credits	Marks
1.	I	18UITA11	Digital Principles and Applications	4	100
2.	II	18UITA21	Discrete Mathematics	4	100
3.	III	18UITA31	Numerical Methods	4	100
4.	IV	18UITA41	Resource Management Techniques	4	100
			Total	**16**	**400**

PART IV – SKILL ENHANCEMENT COURSES

S.No.	Sem.	Code	Title of the Course	Credits	Marks
1.	I	18UITS11P	Hardware Simulator Lab	2	100
2.	II	18UITS21	Object Oriented Programming in C++	2	100
3.	II	18UITS21P	Object Oriented Programming using C++ Lab	2	100
4.	IV	18UITS41	Numerical Aptitude	2	100
5.	IV	18UITS41P	Multimedia Lab	2	100
6.	VI	18UITS61P	Python Programming Lab	2	100
			Total	**12**	**600**

PART IV – NON MAJOR ELECTIVE COURSES

S.No.	Sem.	Code	Title of the Course	Credits	Marks
1	III	18UITN31	Spreadsheet	2	100
2	IV	18UITN41	Introduction to HTML	2	100
			Total	**4**	**200**

PART IV–GENERIC ELECTIVE AND ABILITY ENHANCEMENT COMPULSORY COURSES

S.No.	Sem.	Code	Title of the Course	Credits	Marks
1	I	18UGVE11	Value Education	2	100
2	III	18UGEH31/ 18UGEW32	Human Rights/ Women studies	1	100
3	IV	18UGEC41/	Constitution of India/	1	100
4		18UGEM42/	Modern Economics/		
6		18UGEA43/	Adolescent Psychology/		
7		18UGED44 18UGED44N	Disaster Management Disaster Management		
8		Part V	Extension Activities	1	-
9	V	18UGES51	Environmental Studies	2	100
			Total	**7**	**400**

PART –V - EXTENSION ACTIVITIES

S.No.	Sem.	Code	Title of the Course	Credit
1	I, II, III & IV	18UVNS1 18UVNS2	National Service Scheme	1
2		18UVPE1 18UVPE2	Physical Education	
3		18UVYR1 18UVYR2	Youth Red Cross Society	
4		18UVRR1	Red Ribbon Club	
5		18UVSF1	Science Forum	
6		18UVEC1	Eco Club	
7		18UVLI1	Library and Information Science	
8		18UVCC1	Consumer Forum	
9		18UVHF1	Health and Fitness Club	
10		18UVNC1 18UVNC2	National Cadet Corps	

V.V. VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

INFORMATION TECHNOLOGY (UG)
Course Structure - Allotment of Hours and Credits

For those who join in the Academic Year 2018 - 2019 and after

Components	Semester						Total Number of Hours / Credits
	I	II	III	IV	V	VI	
Part I : Tamil /Hindi	6 (3)	6 (3)	5(3)	5 (3)	-	-	22(12)
Part II : English	6(3)	6(3)	6(3)	6 (3)	-	-	24(12)
Part III : Core, Allied and DSEC Courses:							
Core Course	5(4)	5(4)	4(4)	4(4)	5(5)	5 (5)	28(26)
Core Course	-	-	4(3)	-	5 (5)	5 (5)	14(13)
Core Course	-	-	-	-	5 (5)	5 (5)	10(10)
Core Practical	5 (3)	5 (3)	4 (2)	4 (2)	5 (2)	4 (2)	27(14)
Core Courses Assessment - Online	-	-	-	-	0 (1)	0 (1)	0 (2)
Allied Course	4 (4)	4 (4)	4 (4)	4 (4)	-	-	16(16)
DSEC	-	-	-	-	4 (4)	5 (4)	9 (8)
DSEC Practical	-	-	-	-	4 (2)	4 (2)	8 (4)
Part IV : Non Major Elective and Value Added Courses:							
Value Education	2 (2)	-	-	-	-	-	2 (2)
Environmental Studies	-	-	-	-	2 (2)	-	2 (2)
Non Major Elective	-	-	2 (2)	2 (2)	-	-	4 (4)
Generic Elective	-	-	1(1)	1(1)	-	-	2(2)
SEC	2 (2)	2 (2)	-	2 (2)	-	2 (2)	8 (8)
SEC	-	2 (2)	-	2 (2)	-	-	4 (4)
Part V – Extension Activities NSS/ Physical Education/YRC/ RRC/ Science Forum/ ECO Club/ Library and Information Science/ Consumer Club/ Fitness Club/ National Cadet Corps	-	-	-	0 (1)	-	-	0 (1)
Total	**30 (21)**	**30(21)**	**30 (22)**	**30 (24)**	**30(26)**	**30 26)**	**180(140)**

DSEC: Discipline Specific Elective Course SEC: Skill Enhancement Course

V.V. VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY

SEMESTER I

S.No.	Components		Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
								Int.	Ext.	Total
1	**Part I**		Tamil / Hindi Course I	18UTAG11/ 18UHDG11	6	3	3	25	75	100
2	**Part II**		English Course I	18UENG11	6	3	3	25	75	100
3	**Part III**	Core Course 1	Introduction to IT and Programming in C	18UITC11	5	4	3	25	75	100
4		Core Practical 1	Programming in C Lab	18UITC11P	5	3	3	40	60	100
5		Allied Course 1	Digital Principles and Applications	18UITA11	4	4	3	25	75	100
6	**Part IV**	SEC Practical 1	Hardware Simulator Lab	18UITS11P	1 T*+1P'	2	2	40	60	100
7		AECC – 1	Value Education	18UGVE11	2	2	-	100	-	100
				Total	**30**	**21**				**700**

T* - Tutorial P' - Practical

B.Sc. INFORMATION TECHNOLOGY - SEMESTER II

S.No.	Components		Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
								Int.	Ext.	Total
1	**Part I**		Tamil / Hindi Course II	18UTAG21/ 18UHDG21	6	3	3	25	75	100
2	**Part II**		English Course II	18UENG21	6	3	3	25	75	100
3	**Part III**	Core Course 2	Advanced Concepts in C and Data Structures	18UITC21	5	4	3	25	75	100
4		Core Practical 2	Data Structures using C Lab	18UITC21P	5	3	3	40	60	100
5		Allied Course 2	Discrete Mathematics	18UITA21	4	4	3	25	75	100
6	**Part IV**	SEC 1	Object Oriented Programming in C++	18UITS21	2	2	2	40	60	100
7		SEC Practical 2	Object Oriented Programming using C++ Lab	18UITS21P	1 T*+1P’	2	2	40	60	100
				Total	**30**	**21**				**700**

T* - Tutorial P’ - Practical

B.Sc. INFORMATION TECHNOLOGY - SEMESTER III

S.No.	Components		Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
								Int.	Ext.	Total
1	**Part I**		Tamil / Hindi Course III	18UTAG31C/ 18UHDG31	5	3	3	25	75	100
2	**Part II**		English Course III	18UENG31	6	3	3	25	75	100
3	**Part III**	Core Course 3	Data Base Management Systems	18UITC31	4	4	3	25	75	100
4		Core Course 4	Operating Systems	18UITC32	4	3	3	25	75	100
5		Core Practical 3	RDBMS Lab	18UITC31P	4	2	3	40	60	100
6		Allied Course 3	Numerical Methods	18UITA31	4	4	3	25	75	100
7	**Part IV**	NMEC 1	Spreadsheet	18UITN31	1 T*+1P’	2	2	40	60	100
8		GEC 1	1.Human Rights/ 2. Women Studies	18UGEH31/ 18UGEW32	0	1	2	100	-	100
		GEC 2	1. Constitution of India/ 2. Modern Economics/ 3. Adolescent Psychology/ 4. Disaster Management Disaster Management	18UGEC41/ 18UGEM42/ 18UGEA43/ 18UGED44 18UGED44N	1	-	-	-	-	-
				Total	**30**	**22**				**800**

T* - Tutorial P’ - Practical

B.Sc. INFORMATION TECHNOLOGY - SEMESTER IV

S.No.	Components		Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
								Int.	Ext.	Total
1	**Part I**		Tamil / Hindi Course IV	18UTAG41C/ 18UHDG41	5	3	3	25	75	100
2	**Part II**		English Course IV	18UENG41	6	3	3	25	75	100
3	**Part III**	Core Course 5	PHP and MYSQL	18UITC41	4	4	3	25	75	100
4		Core Practical 4	Web Design using PHP Lab	18UITC41P	4	2	3	40	60	100
5		Allied Course 4	Resource Management Techniques	18UITA41	4	4	3	25	75	100
6	**Part IV**	SEC 3	Numerical Aptitude	18UITS41	2	2	2	40	60	100
7		SEC Practical 2	Multimedia Lab	18UITS41P	1T*+1P’	2	2	40	60	100
8		NMEC 2	Introduction to HTML	18UITN41	2	2	2	40	60	100
9		GEC 2	1. Constitution of India/ 2. Modern Economics/ 3. Adolescent Psychology/ 4. Disaster Management Disaster Management	18UGEC41/ 18UGEM42/ 18UGEA43/ 18UGED44 18UGED44N	1	1	2	100	-	100
	Part V		Extension Activity		-	1	-			
				Total	**30**	**24**				**900**

T* - Tutorial P’ - Practical

B.Sc. INFORMATION TECHNOLOGY - SEMESTER V

S.No.	Components		Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
								Int.	Ext.	Total
1	**Part III**	Core Course 6	Java Programming	18UITC51	5	5	3	25	75	100
2		Core Course 7	Computer Networks	18UITC52	5	5	3	25	75	100
3		Core Course 8	Computer Algorithms	18UITC53	5	5	3	25	75	100
4		Core Practical 5	Java Programming Lab	18UITC51P	5	2	3	40	60	100
5		DSEC 1	Cloud Computing / Information Security/ Information Retrieval /	18UITE51/ 18UITE52/ 18UITE53	4	4	3	25	75	100
6		DSEC Practical 1	VB.Net Programming Lab/ Computer Graphics Programming Lab	18UITE51P/ 18UITE52P	4	2	3	40	60	100
		Online Courses	Core Courses Assessment – Online	18UITOL51	_	1	_	50	-	50
7	**Part IV**	AECC 2	Environmental Studies	18UENV51	2	2	2	100		100
				Total	**30**	**26**				**750**

SEMESTER VI

S.No.	Components		Title of the Course	Course Code	Hours per week	Credits	Exam. Hours	Marks		
								Int.	Ext.	Total
1		Core Course 9	Mobile Computing	18UITC61	5	5	3	25	75	100
2		Core Course 10	Data Mining	18UITC62	5	5	3	25	75	100
3		Core Course 11	Software Engineering	18UITC63	5	5	3	25	75	100
4		Core Practical 6	Project	18UITC61PR	5	2	3	40	60	100
5	**Part III**	DSEC 2	Embedded Systems/ Wireless Adhoc Networks/ Cyber Security	18UITE61/ 18UITE62/ 18UITE63	4	4	3	25	75	100
6		DSEC Practical 2	Android Programming Lab/ Linux Programming Lab	18UITE61P 18UITE62P	4	2	3	40	60	100
7	**Part IV**	SEC Practical 3	Python Programming Lab	18UITS61P	1 T*+1P’	2	2	40	60	100
		Online Courses	Core Course Assessment – Online	18UITOL61	-	1	-	50	-	50
Total					**30**	**26**				**750**

T* - Tutorial P’ - Practical

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester V	**JAVA PROGRAMMING**	Hours/Week: 5	
Core Course – 6		Credits: 5	
Course Code		Internal	External
18UITC51		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- gain strong foundation on Java Programming syntax
- understand the concept of classes and inheritance
- know the importance of packages and interface
- apprehend the knowledge of Multithreading
- develop java programs to implement error handling techniques using exceptions
- comprehend the applet and graphics programming concepts

UNIT I

Fundamentals of Object Oriented Programming: Introduction – Object Oriented Paradigm – Basic Concepts of OOPS – Benefits of OOP – Applications of OOP. **Java Evolution:** Java History – Java Features – How Java differs from C and C++ – Java and Internet – Java and World Wide Web. **Overview of Java Language:** Introduction – Simple Java Program – More of Java – An Application with two classes – Java Program Structure – Java Tokens – Java Statements – Java Virtual Machine – Command Line Arguments. **Constants, Variables and Data Types:** Introduction – Constants – Variables – Data Types – Declaration of Variables – Giving Values to Variables – Scope of Variables – Symbolic Constants – Type Casting – Getting Values of Variables – Standard Default values. **Operators and Expression:** Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators –

Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical Functions. **Decision Making and Branching:** Introduction – Decision Making with If Statement – Simple If Statement – The if ….. Else Statement – Nesting of If … Else Statements – The Else If Ladder – The Switch Statement – The ? : Operator.

(15 Hours)

UNIT II

Decision Making and Looping: Introduction – While Statement – do Statement – for statement – Jumps in Loops – Labeled Loops. **Classes, Objects and Methods:** Introduction – Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing Class Members – Constructors – Method Overloading – Static Members – Nesting of methods – Inheritance: Extending a class – Overriding Methods – Final Variables and Methods – Final Classes – Finalizer Methods – Abstract Methods and Classes – Methods with Varargs – Visibility Control.

Self Study: Simple If – The if ….. Else Statement – Nesting of If … Else Statement – The Else If Ladder. (12 Hours)

UNIT III

Arrays Strings and Vectors: Introduction – One-Dimensional Arrays – Creating an Array – Two-Dimensional Arrays – Strings – Vectors – Wrapper Classes – Enumerated Types. **Interfaces: Multiple Inheritance:** Introduction – Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables. **Packages: Putting Classes Together:** Introduction – Java API Packages – Using System Packages – Naming Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package – Hiding Classes – Static Import. (17 Hours)

UNIT IV

Multithreaded Programming: Introduction – Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Method – Thread Exception – Thread Priority – Synchronization – Implementing the 'Runnable' Interface. **Managing Errors and Exceptions:** Introduction – Types of Errors –

Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing Our Own Exceptions – Using Exceptions for Debugging.

(16 Hours)

UNIT V

Applet Programming: Introduction – How Applet Differ from A pplications – Preparing to Write Applets – Building Applet Code – Applet Life Cycle – Creating an Executable Applet – Designing a Web Page – Applet Tag – Adding Applet to HTML file – Running the Applet – More About Applet Tag – Passing Parameters to Applets – Aligning the Display – More About HTML Tags – Displaying Numerical Values – Getting Input from the User. **Graphics Programming:** Introduction – The Graphics Class – Lines and Rectangles – Circles and Ellipses – Drawing Arcs – Drawing Polygons – Line Graphs – Using Control Loops in Applets – Drawing Bar Charts. **Managing Input/ Output Files in Java:** Introduction – Concept of Streams – Stream Classes – Byte Stream Classes – Character Stream Classes – Using Streams – Other useful I/O Classes – Using the File Class – Input/ Output Exceptions – Creation of Files – Reading/ Writing Characters – Reading/Writing Bytes – Handling Primitive Data Types – Concatenating and Buffering Files. (15 Hours)

TEXT BOOK

Balagurusamy, E. (2015). *Programming with Java : A Primer*, Fifth Edition, New Delhi : Tata McGraw-Hill Education.

UNIT	CHAPTERS	SECTIONS
I	1 - 6	1.1-1.5, 2.1-2.5, 3.1-3.7, 3.10, 3.11, 4.1- 4.11, 5.1-5.15, 6.1-6.8
II	7 - 8	7.1-7.6, 8.1-8.18
III	9, 10, 11	9.1–9.8, 10.1–10.5, 11.1-11.10
IV	12, 13	12.1-12.10, 13.1-13.7, 13.9
V	14, 15, 16	14.1-14.16, 15.1-15.9, 16.1-16.14

REFERENCE BOOKS

1. Daniel Liang, Y. (2011). *Introduction to Java Programming*, Eighth Edition, Delhi : Pearson Higher Education.

2. Patrick Naughton, Herbert Schildt, (2002). *Java 2 – The Complete Reference*, Fifth Edition, New Delhi: Tata McGraw Hill.
3. Dr.Somasundaram, (2013). *Introduction to Java Programming*, India: Jaico Publishing House.

Tmty.S.Rajapriya
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester V	**COMPUTER NETWORKS**	Hours/Week: 5	
Core Course - 7		Credits: 5	
Course Code		Internal	External
18UITC52		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- know the fundamental concepts of applications on networks
- understand the protocols in Data Link Layer
- apply the routing algorithms in Network Layer
- establish connect and disconnect the transport layer
- familiar with wireless transmissions
- apprehend the concepts of world wide web, domain name system

UNIT I

Introduction: Network Hardware – Personal Area Network – Local Area Network – Metropolitan Area Network – Wide Area Network – Network Software – Reference Models – The OSI Reference Model – The TCP/IP Reference Model. **The Physical Layer:** Guided Transmission Media – Wireless Transmission. (16 Hours)

UNIT II

The Data Link Layer: Data Link Layer Design Issues – Error Detection and Correction – Elementary Data Link Protocols – Sliding Window Protocols – A One-Bit Sliding Window Protocol – A Protocol using Go-Back N. (12 Hours)

UNIT III

The Medium Access Control Sublayer: The Channel Allocation problem – Multiple Access Protocols: ALOHA, Carrier Sense Multiple Access Protocol, Collision –

Free protocols. **The Network Layer:** Network Layer Design Issues – Routing Algorithms: Shortest Path Algorithm, Flooding, Distance vector routing. (17 Hours)

UNIT IV

The Transport Layer: The Transport Service – Services Provided to Upper Layers – Transport Service Primitives – Berkeley Sockets – Elements of Transport Protocols – Addressing – Connection Establishment – Connection Release – Error control and Flow control. (15 Hours)

UNIT V

The Application Layer: DNS – The Domain Name System – The DNS Name Space – Electronic Mail – Architecture and Services – The World Wide web – Static Web pages – Dynamic Web pages and Web applications – Streaming Audio and Video – Digital Audio – Digital Video. (15 Hours)

Self Study: Electronic Mail.

TEXT BOOK

Andrew Tanenbaum, S., David Wetherall, J., (2011). *Computer Networks*, 5th Edition, Delhi : Pearson Education Inc.

UNIT	CHAPTERS	SECTIONS
I	**1, 2**	**1: 2,2.1 – 2.4, 3, 4, 4.1, 4.2 2: 2, 3**
II	**3**	**1, 2, 3, 4, 4,1, 4.2**
III	**4, 5**	**4:1, 2, 2.1, 2.2, 2.3** **5:1, 2, 2.2 – 2.4**
IV	**6**	**1, 1.1, 1.2, 1.3, 2, 2.1 – 2.4**
V	**7**	**1, 1.1, 2, 2.1, 3, 3.2, 3.3, 4, 4.1, 4.2**

REFERENCE BOOKS

1. William Stallings, (2007). *Data and Computer Communications*, Eighth Edition, Delhi: Pearson Education.
2. James Kurose, F., *Computer Networking : A Top-Down Approach*, 6th Edition, Delhi : Pearson Intl.
3. Behrouz Forouzan, *Data Communications and Networking*, 4th edition, New Delhi : McGraw Hill,

Tmty.J.Kalavathi

Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester V	**COMPUTER ALGORITHMS**	Hours/Week: 5	
Core Course – 8		Credits: 5	
Course Code		Internal	External
18UITC53		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- analyse the fundamental concepts of algorithms
- understand the concept of writing efficient algorithms
- gain the knowledge of efficient sorting and searching techniques
- apprehend the basic concepts of Dynamic Programming analyse the trees with greedy approach and knapsack problem
- analyse the time complexity to solve the problem
- comprehend the knowledge of Backtracking techniques.

UNIT I

Algorithms: Efficiency, Analysis and Order: Algorithms – Importance of developing efficient algorithms – Analysis – Order. (15 Hours)

UNIT II

Divide – and – Conquer: Binary Search – Merge Sort – Divide and Conquer Approach – Quick Sort – Arithmetic with Large Numbers. (15 Hours)

UNIT III

Dynamic Programming: Binomial coefficients – Floyd's algorithm for Shortest Paths – Dynamic programming and Optimization problems – Chained Matrix Multiplication – Optimal Binary Search tree – The Travelling Salesperson problem.

(15 Hours)

UNIT IV

Greedy Approach: Minimum Spanning Trees – Dijkstra's algorithm for Single source shortest path – Scheduling – Huffman Code – A Greedy Approach to the 0/1 Knapsack problem. (15 Hours)

UNIT V

Backtracking: The Backtracking Techniques – n Queens Problem – Sum of Subsets Problem – Graph Coloring – Hamiltonian Circuits. (15 Hours)

TEXT BOOK

Richard Neapolitan, Kumarss Naimipour, (2004). *Foundations of Algorithms Using C++ Pseudo code*, Third edition, New Delhi : Narosa Publication.

UNIT	CHAPTERS	SECTIONS
I	**1**	1.1-1.4
II	**2**	2.1- 2.4, 2.6
III	**3**	3.1- 3.6
IV	**4**	4.1- 4.4, 4.5.1
V	**5**	5.1, 5.2, 5.4- 5.6

REFERENCE BOOKS

1. Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran, (2005). *Fundamentals of Computer Algorithms*, Delhi : Galgotia publications.
2. Thomas Cormen, H., Charles Leiserson, E., Ronald Rivest, L., Clifford Stein, (2006). *Introduction to Algorithms*, Delhi : Prentice Hall of India.
3. Hemant Jain, (2006). *Problem Solving in Data Structures & Algorithms*, Delhi : Pearson Education.

Tmty.D.Shunmuga Kumari

Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018-19 onwards)

Semester V	**JAVA PROGRAMMING LAB**	Hours/Week: 5	
Core Practical – 5		Credits: 2	
Course Code		Internal	External
18UITC51P		40	60

Using Class and Object concept

1. Write a Java program to find
   i) Largest number
   ii) Small numbr
2. Write a Java program to find sum of digits

Using Function Overloading and Constructors

3. Write a Java program to find the volume of different shapes.

Using Decision making and branching

4. Write a Java program to check whether the given number is prime, perfect, adam, armstrong.

Using Array Concepts

5. Write a Java program for Matrix Manipulation
6. Write a Java program to sort the names in alphabetical order

Using Inheritance

7. Write a Java program for student details
8. Write a Java program for Employee details
9. Write a Java program to Implement multiple inheritance using interface for payroll processing

Using Multithreading

10. Write a Java program to perform multiplication table and sum of digit.

11. Write a Java program to check whether the number is odd or even

Using Exception

12. Write a Java program to perform Any 3 Built in Exception

13. Write a Java program to implement User defined Exception

Using Package

14. Write a Java program to perform Arithmetic operation.

Using Applet

15. Write a Java program to Animate a Face

16. Write a Java program to design a Traffic signal

Using AWT/Event Handling

17. Write a Java program to find volume of different shapes.

Tmty.T.Veiluvanthal

Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester V	**CLOUD COMPUTING**	Hours/Week: 4	
DSEC – 1		Credits: 4	
Course Code		Internal	External
18UITE51		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- know the technologies of network based systems.
- understand the cloud deployment models.
- gain the concept of Virtualization and Virtual Clusters.
- apprehend the knowledge of cloud resource management and platform deployment.
- analyze the Challenges faced by the cloud data in security.

UNIT I

Cloud Architecture: An Overview – Technologies For Network – Based System – System Models for Distributed and Cloud Computing – NIST Cloud Computing Reference Architecture. (15 Hours)

UNIT II

Cloud Computing Models: Introduction – Characteristics of a Cloud – Cloud Service and Models (IaaS, PaaS, SaaS) – Cloud Deployment Models – Public vs Private Cloud – Cloud Solution – Cloud Ecosystem – Service Management – Computing On Demand. (12 Hours)

UNIT III

Virtualization: Introduction – Basic of Virtualization – Types of Virtualization – Implementation Levels of Virtualization – Virtualization Structures / Tools and Mechanisms – Virtualization of CPU, Memory, I/O Devices – Virtual Clusters and

Resource Management – Virtualization for Data – Center Automation. (13 Hours)

UNIT IV

Cloud Infrastructure: Architectural Design of Compute and Storage Clouds – Layered Cloud Architectural Development – Virtualization Support and Disaster Recovery – Architectural Design Challenges – Inter Cloud Resource Management – Resource Provisioning and Platform Deployment – Virtual Machine Creation and Management – Global Exchange of Cloud Resources. (18 Hours)

UNIT V

Security in the Cloud: Security Overview – Cloud Security Challenges – Software – As – A – Service Security – Autonomic Security. (12 Hours)

TEXT BOOK

Dr. Priya, A. (2016 reprint). *Cloud Computing*, Chennai : Margham Publications.

UNIT	CHAPTER
I	1
II	2
III	3
IV	4
V	6

REFERENCE BOOKS

1. Thomas Erl, Ricardo Puttini, Zaigham Mahmood, (2013). *Cloud Computing: Concepts, Technology & Architecture*, Delhi : Prentice Hall.
2. Lars Nielsen, *The Little Book of Cloud Computing*, Newport: New Street Communications.
3. Ray Rafaels, (2015). *Cloud Computing: From Beginning to End*, California: CreateSpace Independent Publishing Platform.

Tmty.G.Chandra Prabha

Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester V	**INFORMATION SECURITY**	Hours/Week: 4	
DSEC – 1		Credits: 4	
Course Code		Internal	External
18UITE52		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- understand the basics of Information Security
- know the legal, ethical and professional issues in Information Security apprehend the aspects of risk management
- analyze various standards in security
- apply the technological aspects of Information Security

UNIT I

Introduction Security: An Introduction – Introduction – History of Information Security – Security – CNSS Security Model – Components of an Information System – Balancing Information Security and Access – The System Development Life Cycle – The Security System Development Life Cycle. (15 Hours)

UNIT II

Necessity of Security: Introduction – Business Needs First – Threats – Attacks. (15 Hours)

UNIT III

Professional, Legal and Ethical Issues in Information Security: Introduction – Law and Ethics in Information Security – Relevant U.S. Laws –International Laws and Legal Bodies – Ethics and Information Security – Code of Professional Organization – Key U.S. Federal Agencies. (15 Hours)

UNIT IV

Managing IT Risk: Introduction **–** An overview of Risk Management – Risk Identification – Risk Assessment – Risk Control Strategies – Selecting a Risk Control Strategy – Risk Management Discussion Points (15 Hours)

UNIT V

Plan for Security: Introduction – Information Security Planning and Governance Information Security Policy, Standards and Practices – The Information Security Blueprint – Security Education, Training and Awareness Program – Continuity Strategies

(15 Hours)

TEXT BOOK:

Michael Whitman, E., and Herbert Mattord, J., (2003). *Principles of Information Security*, 4th edition, Delhi : Cengage Learning India Pvt. Ltd.

UNIT	CHAPTER	Page No.
I	1	1 – 29
II	2	37 – 72
III	3	87 – 111
IV	4	115 – 153, 161 – 164
V	5	167 – 234

REFERENCE BOOKS

1. Micki Krause, Harold Tipton, F., (2004). *Handbook of Information Security Management*, Vol 1-3 Florida : CRC Press LLC.
2. Stuart McClure, Joel Scram bray, George Kurtz, (2003). *Hacking Exposed*, New Delhi : Tata McGraw-Hill.
3. Matt Bishop, (2002). *Computer Security Art and Science*, Delhi : Pearson/PHI.

Tmty.T.Veiluvanthal
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester V	**INFORMATION RETRIEVAL**	Hours/Week: 4	
DSEC – 1		Credits: 4	
Course Code		Internal	External
18UITE53		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- know the basics of Information Retrieval concepts.
- understand several topics of Information retrieval such as – Boolean retrieval model, Vector space model, Latent semantic indexing.
- apply the index compression techniques
- analyze comprehensive details about various Evaluation methods.
- implement insight about the topics covered in the course.

UNIT I

Boolean Retrieval: An example information retrieval problem – A first take at building an inverted index – Processing Boolean queries – The extended Boolean model versus ranked retrieval. **The term vocabulary and postings lists:** Document delineation and character sequence decoding – Determining the vocabulary of terms – Faster postings list intersection via skip pointers – Positional postings and phrase queries. (12 Hours)

UNIT II

Dictionaries and tolerant retrieval: Search structures for dictionaries – Wildcard queries – Spelling correction – Phonetic correction. **Index construction:** Hardware basics – Blocked sort – based indexing – Single – pass in-memory indexing – Distributed indexing – Dynamic indexing – Other types of indexes. (12 Hours)

UNIT III

Index compression: Statistical properties of terms in information retrieval – Dictionary compression – Postings file compression. **Scoring, term weighting and the vector space model:** Parametric and zone indexes – Term frequency and weighting – The vector space model for scoring – Variant tf-idf functions. (13 Hours)

UNIT IV

Computing scores in a complete search system: Efficient scoring and ranking – Components of an information retrieval system – Vector space scoring and query operator interaction. **Evaluation in information retrieval:** Information retrieval system evaluation – Standard test collections – Evaluation of unranked retrieval sets – Evaluation of ranked retrieval results – Assessing relevance – A broader perspective: System quality and user utility – Results snippets. (12 Hours)

UNIT V

Relevance feedback and query expansion: Relevance feedback and pseudo relevance feedback – Global methods for query reformulation. **XML retrieval:** Basic XML concepts – Challenges in XML retrieval – A vector space model for XML retrieval – Evaluation of XML retrieval – Text - centric vs. data-centric XML retrieval. (11 Hours)

TEXT BOOK

Christopher Manning , D., Prabhakar Raghavan, Hinrich Schütze, *Introduction to Information Retrieval*, Cambridge : Cambridge University Press, England.

UNIT	CHAPTER
I	**1,2**
II	**3,4**
III	**5,6**
IV	**7,8**
V	**9,10**

REFERENCE BOOKS

1. Tanveer Siddiqui, Tiwary, U. S., *Natural Language Processing And Information Retrieval*, Cambridge : Cambridge University Press, England.
2. Van Rijsbergen, C.J., *Information Retrieval*, Cambridge : Cambridge University press, England.
3. Bruce Croft, Donald Metzler, Trevor Strohman, (2009). *Search Engines: Information Retrieval in Practice*, 1st Edition, Boston : Addison Wesley.
4. Mark Levene, (2010). *An Introduction to Search Engines and Web Navigation*, 2nd Edition, New Jersey : Wiley.

Tmty.K.Kasthuri
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester V	**VB.NET PROGRAMMING LAB**	Hours/Week: 4	
DSEC Practical – 1		Credits: 2	
Course Code		Internal	External
18UITE51P		40	60

Console Applications:

Using Structure and Enum

1. Write a VB.Net program to Create, Delete and search an address in an address book using array of Structures.
2. Write a VB.Net Program to Display Students' mark list using enumeration.

Using Class and Methods

3. Write a VB.Net Program to perform following string operations
    i) Length
    ii) Substring
    iii) Replacing
    iv) String Comparison
    v) String Reverse
    vi) Uppercase
    vii) Lowercase
    viii) Concatenation
    ix) Trim
4. Write a VB.Net Program to find the Volume for different Shapes.
5. Write a VB.Net Program to sort a given set of names.

Using Functions

6. Write a VB.Net Program to generate prime and perfect numbers.

Using Built-in Classes

7. Write a VB.Net Program to perform

i) Array List ii) Bit Array iii) Queue iv) Stack Operations.

Windows Applications

Using Constructor

8. Write a VB.Net Program to find Square and cube of a given number.

Using Constructor Overloading

9. Write a VB.Net Program to display the hour, Minute and Second using Constructor Overloading.

Using Inheritance and Form Inheritance

10. Write a VB.Net Program to find Volume of different Shapes
11. Write a VB.Net Program to display date and time using form inheritance.

Using Interface and Exception

12. Write a VB.Net Program to set and display the next value.
13. Write a VB.Net Program to perform system defined exception.

Windows Control Applications

14. Design a calculator.
15. Perform Date Functions.
16. Design a Digital Clock
17. Display image Manually and Automatically in the Picture Box using Track Bar.

Using File Streams

18. Write a VB.Net Program to count Words, Characters and Sentences present in a file using Streams.

ADO.NET PROGRAMMING

19. Develop a package for student data processing.
20. Develop a package for employee data processing.

Tmty.D.Shunmuga Kumari

Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester V	**COMPUTER GRAPHICS PROGRAMMING LAB**	Hours/Week: 4	
DSEC Practical – 1		Credits: 2	
Course Code		Internal	External
18UITE52P		40	60

Algorithm

1. Draw a blue print of a house using some O/P primitives of Computer Graphics.
2. Implementation of Bresenham's line drawing algorithm
3. Implementation of midpoint circle drawing algorithm.
4. Implementation of boundary – fill algorithm
5. Implementation of flood – fill algorithm
6. Using Line drawing Algorithm to draw a house.
7. Implementation of Basic transformation (Translation, Scaling).
8. Implementation of Shearing and Reflection Transformation.

Animation

9. Car
10. Rocket
11. Man doing any one exercise.
12. Flying Kite
13. Fish Movement

Tmty.G.Chandra Prabha
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**MOBILE COMPUTING**	Hours/Week: 5	
Core Course – 9		Credits: 5	
Course Code		Internal	External
18UITC61		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- understand WML variables, elements and events.
- study the WML script operators, functions and datatypes.
- learn WML Scripting for Lang, Float and String library.
- develop applications using Android simulator.
- design a graphical user interface.
- plan, prepare and build an original Android from concept to working program.

UNIT I

Introduction to WML: A Complete example – Cards – Empty – Element tags – Elements-attributes – entities – comments. **WML Variables and Contexts:** Variable Substitution – Setting variables – browser context. **WML tasks and Events:** tasks – Events. **WML user Interactions:** problems with web interactions – interaction in WAP – the input>, <select>, <option>, <optgroup>, <do>, <anchor>, <a> elements – the tabindex attribute. **WML Timers:** Using Timers with WML – the <timer> element. (15 Hours)

UNIT II

WML Decks, templates and cards: The <wml>, <head>, <access>,< meta>, <card> and Template Elements. **WML Text and Text Formatting:** The <P> and

Elements – Character Formatting – Tables. **WML Images:** The <IMG> tag –The WBMP Image Format. **Introduction to WMLScript:** WML Script with WML – Definition of WML Script. **WML Script Datatypes, Variables and Conversations:** Data Types and Literals – Variables – Type Conversion. **WML Script Operators and Expressions:** Operand Conversions – Assignment, Arithmetic, Bitwise, Shift, Logical, Increment and Decrement, Comparison, Type, Conditional and Comma Operators – Precedence and Associativity. (15 Hours)

UNIT III

WML Script statements: Expressions as Statements – Blocks of Statements – Conditions – Loops – Returning from a Function – Other Statements. **WML Script Functions:** Function Declarations – Function Calls – Calls to Other Script UNITs – Calling WML Script from Wml-Standard Libraries. **WML Script Pragmas:** The Access Pragma – the Meta Pragma. **The Lang Library:** abort – abs – character set – exit – float – isFloat – isInt – max – maxInt – min – minInt – parseFloat – parseInt – random-seed. **The Float library:** ceil – floor – int – maxFloat – minFloat – pow – round – sqrt. **The String Library:** charAt – compare – elementAt – elements – find – format – insertAt – isEmpty – length – removeAt – replace – replaceAt – squeeze – substring – toString – trim. (15 Hours)

UNIT IV

Definition for Android: Brief history of embedded device programming –Open handset alliance and android – Introduction to Android. **Application Hello World!:** Creating your first Android projects in Eclipse – examining the Android – created files – Hello world! Again – Hello World! Using an image. **Using the Command – Line Tools and the Android Emulator:** Creating a shell Activity using the Windows CLI – Creating the Hello World! Activity in the Windows CLI – Hello World! On Linux. **Using Intents and the Phone Dialer:** What are Intents? – Using the Dialer – placing a call from your Activity – Modifying the Android Phone Dialer. (15 Hours)

UNIT V

List, Menus, and other views: Building the Activities – Using the Menu. **Using the Cell Phone's GPS Functionality:** Using the Android Location – Based API – Reading the

GPS with the Android Location – Based API – Try this: Toggling Between Map's View Standard and Satellite Views. (15 Hours)

TEXT BOOKS

1. Martin Frost, *Learning WML and WMLScript* –e-book.
2. Jerome Dimarizo, *Android : A Programmer's Guide*, New Delhi : Tata McGraw Publications Private Limited.

BOOK	UNIT	CHAPTER	SECTIONS
1	**I**	**1,2,3,4,5**	**1,2,3,4,5-Full**
1	**II**	**6,7,8,9,10,11**	**6,7,8,9,10,11-Full**
1	**III**	**12,13,14,15,16,17**	**12,13,14,15,16,17-Full**
2	**IV**	**1,5,6,7**	**1,5,6,7,- Full**
2	**V**	**8,9**	**8,9-Full**

REFERENCE BOOKS

1. Addison Jochen Schiller, (2003). *Mobile Communications*, 2nd edition, Delhi : Pearson,
2. Yi Bing Lin, (2000). *Wireless and Mobile Networks Architecture*, 1st edition, New Jersey : John Wiley & Sons.
3. Ben Forta, (2000). *WAP Development with WML and WMLScript*, United Kindom : Sams.

Tmty.J.Kalavathi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**DATA MINING**	Hours/Week: 5	
Core Course – 10		Credits: 5	
Course Code **18UITC62**		Internal 25	External 75

COURSE OUTCOMES

On completion of the course, the students will be able to

- understand Data mining principles and techniques and cutting edge business intelligence
- apprehend the concepts of Data warehousing Architecture and Implementation
- comprehend the concepts of classification, clustering and association rules.
- gain the knowledge of Web mining, Text mining and ethical aspects of Data mining
- discover interesting patterns from large amounts of data to analyze and extract patterns to solve problems, make predictions of outcomes

UNIT I

Introduction to Data Mining: Introduction – Definitions – Data Mining works – Data Mining Tasks – Data Mining Elements – Architecture of Data Mining – Classification of Data Mining – Data Mining Metrics – Data Mining Process – Data Mining Issues – Data Mining Primitives – Operations of Data Mining – Differences of Data Mining with other fields – Example of Data Mining – Uses of Data Mining – Advantages of Data Mining – Disadvantages of Data Mining – Limitations of Data Mining. **Application and Future Scope of Data Mining**: Application of Data Mining – Mining the World Wide Web – The Scope of Data Mining. (12 Hours)

UNIT II

Data Preprocessing: Introduction – Forms/tasks of data preprocessing – Data Cleaning – Inconsistent Data – Data Integration – Data Transformation – Data Reduction – Data cube Aggregation – Attribute Subset Selection. **The Knowledge Discovery Process**: Introduction – The Knowledge Discovery Process in detail – Different forms of Knowledge.

(13 Hours)

UNIT III

Data Mining Techniques: Introduction – Decision Tree – Nearest – Neighbor and Clustering – Genetic Algorithm. **Association Rule Mining in Large Databases**: Association Rule Mining – Mining Single-Dimensional Boolean Association Rules from Transactional Databases – Strengths and Weaknesses of Association Rules Analysis

(10 Hours)

UNIT IV

Classification and Prediction: Introduction – Issues regarding Clustering and Prediction – Classification by Decision Tree Induction – Classification Methods. **Cluster Analysis:** Cluster Analysis in Data Mining – Categories of Clustering Methods – Partitioning Methods – Hierarchical Clustering – Hierarchical Algorithms – Types of Hierarchical Clustering Algorithms. **Data Warehouse:** Definitions of Data Warehouse – Differences between OLTP and Data Warehouse Database. (15 Hours)

UNIT V

Data Warehouse: Data Warehouse Characteristics – Data Warehouse Attributes – Data Warehouse Examples – Benefits of Data Warehouse – Purpose of Data Warehouse – Specialized Applications of Warehousing Technology. **Components of Data Warehouse**: Meta Data – Introduction – Definitions – Types of Metadata – Uses of Metadata – Data Mart – Introduction – Definitions – Data Mart Appropriate – Characteristics – Structure of Data Mart and Data Warehouse – Problems in Data Mart – Features of Data Mart – Other aspects of Data Mart. **On-line Analytical Processing**: Introduction – OLAP Server – MOLAP – ROLAP. (10 Hours)

TEXT BOOK

Bharat Bhushan Agarwal , Sumit Prakash Tayal, *Data Mining and Data Warehousing*, New Delhi : University Science Press (An Imprint of Laxmi Publications Pvt. Ltd.).

UNIT	CHAPTERS	SECTIONS
I	**1, 3**	**1.2, 1.3, 1.7-1.18, 1.20-1.23** **3.1-3.3**
II	**2,4**	**2.1-2.7.2, 4.1 to 4.3**
III	**5, 7**	**5.1, 5.2, 5.4, 5.5, 7.1, 7.2, 7.4**
IV	**8, 9, 10**	**8.1-8.3, 8.6, 9.1 - 9.4.2, 10.2, 10.4**
V	**10, 13, 14**	**10.7-10.12, 13.2.1-13.2.4, 13.3.1-13.3.7, 13.3.10, 14.1-14.4**

REFERENCE BOOKS

1. Pang-Ning Tan, Vipin Kumar, Michael Steinbach, (2012). *Introduction to Data Mining*, India : Dorling Kindersley Pvt. Ltd.
2. Jiawei Han, Micheline Kamber, *Data Mining Concepts and Techniques*, 2nd Edition, San Francisco : Morgan Kaufmann Publishers.
3. Gupta, G. K., (2006). *Introduction to Data Mining with Case Studies*, Delhi : Prentice Hall of India.

Tmty..D.Shunmuga Kumari
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**SOFTWARE ENGINEERING**	Hours/Week: 5	
Core Course – 11		Credits: 5	
Course Code		Internal	External
18UITC63		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- understand the different types of software design.
- analyze the skills to evaluate software and make improvements.
- analyze the required specification process
- understand the concepts of different life cycle models.
- gain knowledge of Verification and validation techniques
- implement the testing strategies.

UNIT I

Introduction to Software Engineering: Some definitions – Some size factors – Quality and productivity factors – Managerial issues. **Planning a Software Project:** Defining the problem – Developing a solution strategy – planning the development process – planning an organizational structure – other planning activities. (15 Hours)

UNIT II

Software Cost Estimation: Software Cost factors – Software cost estimation techniques – staffing level estimation – estimating software maintenance costs. (15 Hours)

UNIT III

Software requirements definition: The software requirements specification – formal specification techniques – languages and processors for requirements specification.

(15 Hours)

UNIT IV

Software Design: Fundamental Design Concepts – Modules and modularization Criteria – Design Notations – Design Techniques – Detailed Design Considerations – Real Time and distributed system design – Test plans – Mile stones walkthroughs and inspections – Design guide lines. (15 Hours)

UNIT V

Verification and validation techniques: Quality assurance – Static analysis – symbolic execution – UNIT Testing and Debugging – System testing – Formal Verification. **Software Maintenance:** Enhancing maintainability during development – Managerial aspects of software maintenance – Configuration management – source code metrics – other maintenance tools and techniques. (15 Hours)

TEXT BOOK

Richard Fairley, E., (2011) *Software Engineering Concepts*, New Delhi : Tata McGraw Hill.

UNIT	CHAPTER	SECTIONS
I	**1** **2**	**1.1 to 1.4** **2.1 to 2.5**
II	**3**	**3.1 to 3.4**
III	**4**	**4.1 to 4.3**
IV	**5**	**5.1 to 5.9**
V	**8** **9**	**8.1, 8.3 to 8.7** **9.1 to 9.5**

REFERENCE BOOKS

1. Jawadekar, (2004). *Software Engineering*, New Delhi : Tata McGraw Hill.
2. Roger Pressman, S. (2010). *Software Engineering: A practitioner's approach*, New Delhi : McGraw-Hill.
3. Rajib Mall, (2014). *Fundamentals of Software Engineering*, Delhi : PHI Learning Private Limited.

Tmty.K.Kasthuri

Course Designer

.

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**EMBEDDED SYSTEMS**	Hours/Week: 4	
DSEC – 2		Credits: 4	
Course Code		Internal	External
18UITE61		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- gain the knowledge of embedded hardware units and devices in a system
- conceptualize and depict a formalization of system design.
- understand the programming concepts and embedded programming in C, C++.
- apprehend the elements of macros and functions.
- know the fundamental concepts of Semaphores – Shared Data

UNIT I

Introduction to Embedded Systems: Embedded Systems – Processor Embedded into a System – Embedded Hardware UNITs and Devices in a System – Embedded Software in a System – Examples of Embedded Systems – Embedded System-on-chip and use of VLSI Circuit Design Technology – Complex Systems Design and Processors – Design Process in Embedded System – Formalization of System Design – Design Process and Design Examples – Classification of Embedded Systems – Skills Required for an Embedded System Designer.

(10 Hours)

UNIT II

Advanced Processor Architectures, Memory Organization and Real-world Interfacing: 8051 Architecture – Real World Interfacing – Introduction to Advanced Architectures – Processor and Memory Organization – Introduction-Level Parallelism-Performance Metrics – Memory-Types, Memory-Maps and Addresses – Processor Selection – Memory Selection. (12 Hours)

UNIT III

Programming Concepts and Embedded Programming in C, C++ and Java: Software Programming in Assembly Language (ALP) and in High-Level Language 'C' – Program Elements: Header and Source Files and Preprocessor Directives – Program Elements: Macros and Functions – Program Elements: Data Types, Data Structures, Modifiers, Statements, Loops and Pointers – Object – Oriented Programming – Embedded Programming in C++ – Embedded Programming in Java. (13 Hours)

UNIT IV

Inter Process Communication and Synchronization of Processes, Threads and Tasks: Mutiple Processes in an Application – Mutiple Threads in an Application – Tasks – Task States – Task and Data – Clear-Cut Distinction between Functions, ISRS and tasks by their Characteristics – Concept of Semaphores – Shared Data – Interprocess Communication – Signal Function – Semaphore Functions – Message Queue Functions – Mailbox Functions – Pipe Functions – Socket Functions – RPC Functions. (13 Hours)

UNIT V

Real-Time Operating Systems : OS Services – Process Management – Timer Functions – Event Functions – Memory Management – Device, File and IO Subsystems Management – Interrupt Routines in RTOS Environment and Handling of Interrupt Source Calls – Real-time Operating Systems – Basic Design Using an RTOS – RTOS Task Scheduling Models, Interrupt Latency and Response of the Tasks as Performance Metrics – OS Security Issues. (12 Hours)

TEXT BOOK

Raj Kamal, *Embedded Systems Architecture, Programming and Design*, Second Edition, New Delhi : Tata McGraw Hill International Edition.

UNIT	CHAPTER	SECTIONS
I	**1**	**1.1-1.12**
II	**2**	**2.1-2.9**
III	**5**	**5.1-5.7**
IV	**7**	**7.1-7.16**
V	**8**	**8.1-8.11**

REFERENCE BOOKS

1. Wayne Wolf , *Computers as Components: Principles of Embedded Computing Systems Design*, Second Edition, New Delhi : Tata McGraw- Hill publications.
2. Frank Vahid , Tony Givargis, *Embedded System Design: A Unified Hardware/Software Introduction*, Second Edition, New Delhi : Tata McGraw-Hill publications.
3. Peter Marbell, *Embedded System Design,* Second Edition, New York : Springer Publications.

Tmty.G.Chandra Prabha
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**WIRELESS ADHOC NETWORKS**	Hours/Week: 4	
DSEC – 2		Credits: 4	
Course Code		Internal	External
18UITE62		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- list and explain the various issues and applications of Ad hoc wirelessnetworks.
- classify and Explain the working of MAC protocols for Ad-hoc wirelessnetworks
- discuss the issues in designing routing protocols and working of Table-Driven Routing protocols.
- compare and contrast the working of various On-Demand Routing protocols.
- analyze the challenges in designing Transport layer Protocols for Ad-hoc networks, Compare and contrast the working of Transport protocols.

UNIT I

Introduction: Fundamentals of Wireless Communication Technology – The Electromagnetic Spectrum – Radio propagation Mechanisms – Characteristics of the Wireless Channel **Ad hoc Wireless Networks:** Introduction – Issues in Ad Hoc Wireless Networks – Ad hoc Wireless Internet. (12 Hours)

UNIT II

MAC Protocols for Ad hoc Wireless Networks: Introduction – Issues in designing a MAC protocol for Ad hoc wireless Networks – Design goals of a MAC protocol for Ad – hoc wireless Networks – Contention based protocols with Reservation Mechanisms – Contention

based MAC protocols with Scheduling Mechanism – Other MAC Protocols – Multichannel MAC Protocol – Multichannel CSMA MAC Protocol. (13 Hours)

UNIT III

Routing protocols for Ad-hoc Wireless Networks: Introduction – Issues in Designing a Routing Protocol for Ad-hoc Wireless Networks – Classification of Routing Protocols – Table Driven Routing Protocols – On-Demand Routing Protocols. (10 Hours)

UNIT IV

Transport Layer and Security Protocols for Ad-Hoc Wireless Networks: Introduction – Issues in Designing a Transport Layer Protocol for Ad-hoc wireless Networks – Design Goals of a Transport Layer Protocol for Ad hoc wireless Networks – Classification of Transport Layer Solutions – TCP over Ad-hoc wireless Networks – Feedback-Based TCP – TCP with Explicit Failure Notification – TCP-BUS – Ad-hoc TCP – Split TCP – A Comparison of TCP Solutions for Ad Hoc Wireless Networks – Other Transport Layer Protocols for Ad Hoc Wireless Networks. (12 Hours)

UNIT V

Transport Layer and Security Protocols for Ad-Hoc Wireless Networks: Security in wireless Ad hoc wireless Networks – Network security requirements – Issues & Challenges in Security Provisioning – Network security Attacks – Key Management – Secure Routing in Ad Hoc Wireless Networks. **Recent Advances in Wireless Networks:** Introduction – Ultra-Wide-Band Radio Communication. (13 Hours)

TEXT BOOK

Siva Ram Murthy C., Manoj, B. S., (2005). *Ad hoc Wireless Networks*, 2nd Edition, Delhi : Pearson Education.

UNIT	CHAPTERS	SECTIONS
I	**1, 5**	**1.1-1.4, 5.1-5.3**
II	**6**	**6.1-6.3, 6.6, 6.7, 6.9(6.9.1-6.9.2)**
III	**7**	**7.1-7.5**
IV	**9**	**9.1-9.6**
V	**9, 14**	**9.7-9.12, 14.1, 14.2**

REFERENCE BOOKS

1. Ozan Tonguz K., Gianguigi Ferrari, (2006). *Ad hoc Wireless Networks*, New Jersey : John WileY.
2. Xiuzhen Cheng, Xiao Hung, Ding Zhu Du, (2004). *Ad hoc Wireless Networking***,** New York : KluwerAcademic Publishers.
3. Toh, C. K., (2002). *Adhoc Mobile Wireless Networks Protocols and Systems*, Delhi : Prentice-Hall PTR.

Tmty.S.Rajapriya

Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**CYBER SECURITY**	Hours/Week: 4	
DSEC – 2		Credits: 4	
Course Code		Internal	External
18UITE63		25	75

COURSE OUTCOMES

On completion of the course, the students will be able to

- know the concepts of Information Security
- analyze the security threats
- apply the information system development life cycle.
- evaluate the purpose of security policies
- gain the knowledge of information security standards

UNIT I

Security Technology: ireless, VPNs ad Firewalls: Introduction – Access Control – Identification – Authentication – Authorization – Accountability – Firewalls – Firewall Processing Modes – Firewalls Cattegorized by Generation – Firewalls Categorized by Structure – Firewall Architectures – Selecting the Right Firewall – Configuring and Managing Firewalls – Content Filters. (16 Hours)

UNIT II

Security Technology: Prevention Systems, Intrusion Detection and Other Security Tools: Introduction – Intrusion Detection and Prevention Systems – IDPS Terminology – Use of IDPS – Types of IDPS – IDPS Detection Methods – IDPS Resonse Behavior – Selecting IDPS Approaches and Products – Strengths and Limitations of IDPSs – Deployment and Implementation of an IDPS – Measuring the Effectiveness of IDPSs – Honeypots, Honeynets and Padded Cell Systems – Trap-and-Trace Systems – Active Intrusion Prevention. (16 Hours)

UNIT III

Securing Physical Assets: Introduction – Physical Access Controls – Physical Security Controls – Fire Security and Safety – Fire Detection and Response – Failure of Supporting Utilities and Structural Collapse – Heating, Ventilation and Air Conditioning – Power Management and Conditioning – Water Problems – Structural Collapse – Maintenance of Facility Systems – Interception of Data – Mobile and Portable Systems – Remote Computing Security – Special Considerations for Physical Security – Inventory Management. (14 Hours)

UNIT IV

Implementing Information Security: Introduction – Information Security Project Management – Developing the Project Plan – Project Planning Considerations – Scope Considerations – The need for Project Management – Technical Aspects of Implementation – Conversion Strategies – The Bull's-Eye Model – To Outsource or Not – Technology Governance and Change Control – Nontechnical Aspects of Implementation – The Culture of Change Management – Considerations for Organizational Change – Information systems Security Certification and Accreditation – Certification versus Accreditation – NIST SP 800-37, Rev. 1: Guide for Applying the Risk Management Framework to federal Information Systems: A Security Life cycle Approach – NSTISS Instruction-1000: National Information Assurance Certification and Accreditation Process (NIACAP) – ISO 27001/27001 Systems certification and Accreditation. (14 Hours)

UNIT V

Maintenance of Information Security eDiscovery: Introduction – Security Management Maintenance Models – NIST SP 800-100 Information Security Handbook: A Guide for Manages – The Security Maintenance Model – Monitoring the External Environment – Monitoring the Internal Environment – Planning and Risk Assessment.

(15 Hours)

TEXT BOOK

Michael Whitman, E., Herbert Mattord, J. (2003). *Principles of Information Security*, 4th edition, Delhi : Cengage Learning India Pvt. Ltd.

UNIT	CHAPTER	PAGE NO.
I	6	237 – 270
II	7	281 – 318
III	9	383 - 412
IV	10	415 - 446
V	12	487 - 528

REFERENCE BOOKS

1. Mayank Bhushan, Rajkumar Singh Rathore, Aatif Jamshed, (2017). *Fundamentals of Cyber Security*, First Edition, New Delhi : BPB Publications.
2. Don Franke, (2016). *Cyber Security Basics: Protect Your Organization by Applying the Fundamentals*, California : CreateSpace Independent Publishing Platform.
3. James Graham, Rick Howard, Ryan Olson, (2010). Cyber Security Essentials, Florida: CRC Press.

Tmty.A.Bharathi Lakshmi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**ANDROID PROGRAMMING LAB**	Hours/Week: 4	
DSEC Practical – 2		Credits: 2	
Course Code		Internal	External
18UITE61P		40	60

1. Create —Hello World application that will display "Hello World!" in the middle of the screen in the emulator.
2. Write a program to display Image on home screen.
3. Create an application with login module. (Username and Password).
4. Write a program to call phone dialer.
5. Create spinner with strings taken from resource folder (res >>value folder) and on changing the spinner value, Image will change.
6. Create a menu with 5 options and selected option should appear in text box.
7. Create a list of all subjects in your course and on selecting a particular subject teacher – in - charge of that subject should appear at the bottom of the screen.
8. Create an application with three option buttons. On clicking a button, color of the screen will change.
9. Create a Login application. On successful login, pop up the message.
10. Create an application to perform Create, Insert, Update, Delete and Retrieve operations on the database.
11. Create an application to perform Create, Insert, Update, Delete and Retrieve operations on the Student Mark List.
12. Create an application to perform Create, Insert, Update, Delete and Retrieve operations on the Employee Payroll System.

13. Create an application to perform Create, Insert, Update, Delete and Retrieve operations on the Banking Transaction.
14. Create an application to perform Create, Insert, Update, Delete and Retrieve operations on the Inventory Management.
15. Create an application to perform Create, Insert, Update, Delete and Retrieve operations on the Library database.
16. Create an application to perform Create, Insert, Update, Delete and Retrieve operations on the EB preparation.

Tmty.S.Rajapriya
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**LINUX PROGRAMMING LAB**	Hours/Week: 4	
DSEC Practical – 2		Credits: 2	
Course Code		Internal	External
18UITE62P		40	60

1. Write a Shell program to perform arithmetic operations.
2. Write a Shell program to perform the person is eligible or not for a vote.
3. Write a Shell program to perform given number is odd or even.
4. Write a Shell program to find the biggest among three numbers.
5. Write a Shell program to prepare student mark list.
6. Write a Shell program to prepare employee paybill.
7. Write a Shell program to prepare electricity bill.
8. Write a Shell program to find the given number is Armstrong or not.
9. Write a Shell program to find the given number is palindrome or not.
10. Write a Shell program to find the given number is prime or not.
11. Write a Shell program to find the sum of digits and reverse a number.
12. Write a Shell program to check the given number is perfect or not.
13. Write a Shell program to find the factorial of a given number.
14. Write a Shell program to display the multiplication table.
15. Write a Shell program to perform file operations.
16. Write a Shell program to perform System operations.
17. Write a Shell program to count the number of times the user login.
18. Write a Shell program to print the common words in a file.
19. Write a Shell program for inventory maintenance system.
20. Write a Shell program for bank processing system.
21. Write a Shell program for library management system.
22. Write a Shell program to perform sum of elements in an array by implementing in C.
23. Write a Shell program to display Transpose of a given matrix by implementing in C.

Tmty.K.Kasthuri
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A' Grade (3rd Cycle) by NAAC
VIRUDHUNAGAR - 626 001

B.Sc. INFORMATION TECHNOLOGY (SEMESTER)
(2018 – 19 onwards)

Semester VI	**PYTHON PROGRAMMING LAB**	Hours/Week: 2	
SEC Practical – 3		Credits: 2	
Course Code		Internal	External
18UITS61P		40	60

1. Compute the GCD of two numbers.
2. Find the square root of a number (Newton's method)
3. Exponentiation (power of a number)
4. Find the maximum of a list of numbers
5. Linear search and Binary search
6. Selection sort, Insertion sort
7. Merge sort
8. First n prime numbers
9. Multiply matrices
10. Programs that take command line arguments (word count)
11. Find the most frequent words in a text read from a file
12. Simulate elliptical orbits in Pygame
13. Simulate bouncing ball in Pygame

Tmty.J.Kalavathi
Course Designer