

SRI RAMAKRISHNA MISSION VIDYALAYA
POLYTECHNIC COLLEGE
(AN AUTONOMOUS & ISO 9001:2008 CERTIFIED INSTITUTION)

CURRICULUM AND SYLLABUS

(APPLICABLE TO STUDENTS ADMITTED FROM
2016 - 2017 ACADEMIC YEAR ONWARDS)

(R5 – SCHEME)

DIPLOMA IN INFORMATION TECHNOLOGY
(SECOND AND THIRD YEAR)



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R5 - SCHEME : REGULATIONS

(For Second Year and Third Year)

Description of the Course:

The Course for the Full Time Diploma in Engineering shall extend over a period of three academic years, consisting of 6 semesters. This Curriculum for the Diploma Course is applicable for the candidates admitted in first year from 2016-2017 academic year onwards.

Eligibility for the Award of Diploma:

No candidate shall be eligible for the Diploma unless he has undergone the prescribed course of study in this College for a period of not less than 3 academic years when joined in first year and two years if joined under lateral entry scheme in the second year and passed the prescribed examination. The minimum and maximum period for completion of Diploma course is as given below:

Diploma Course	Minimum Period	Maximum Period
Full Time Regular	3 Years	6 Years
Full Time(Lateral Entry)	2 Years	5 Years

Age Limit: No age limit

Curriculum and Subjects of Study:

The curriculum and subjects of study shall be in accordance with the syllabus prescribed from time to time, both in theory and practical subjects.

Examinations:

Autonomous Examinations in all subjects of all the semesters under the scheme of examinations will be conducted at the end of each semester. The internal assessment marks for all the subjects will be awarded on the basis of continuous internal assessment earned during the semester concerned. For each subject 25 marks are allotted for internal assessment and 75 marks are allotted for final external Autonomous examination.

Continuous Internal Assessment Marks:

A. FOR THEORY SUBJECTS:

The internal assessment marks for a total of 25 marks, which are to be distributed as follows:

a)	Subject Attendance	05 marks
b)	Assignments	05 marks
c)	Seminar	05 marks
d)	Continuous Assessment Tests	05 marks
e)	Model Examination	05 marks
	TOTAL	25 Marks

a) Subject Attendance**05 Marks**

(Award of marks for subject attendance to each theory subject is as per the range given below)

80%	-	83%	} 1 Mark			
84%	-	87%		} 2 Marks		
88%	-	91%			} 3 Marks	
92%	-	95%				} 4 Marks
96%	-	100%				

b) Assignments**05 Marks**

For each theory subject three assignments are to be given and the average marks scored is reduced to 05 marks.

c) The Material submitted as well as Seminar presentation**05 Marks**

The students will be given topics either from the subjects (excluding the topics available in the syllabus) or general topics which will help to improve their grasping capacity as well as their capacity to express the subject in hand. The students will be allowed to prepare the material for the given topic using the library hour and they will be permitted to present the seminar (for the 3rd and 4th semesters, the students will be permitted to present the seminar as a group not exceeding six members and for the 5th and 6th semester students will present the seminar individually).

The concerned subject teacher will suggest topics and will evaluate the submitted materials and seminar presentation. (2.5 marks for the material submitted in writing and 2.5 marks for the seminar presentation). For each subject a minimum of two topics are given and the average marks scored is reduced to 05 marks.

d) Continuous Assessment Tests**05 Marks**

Two Continuous Assessment Tests (CAT), each of 2 hours duration for a total of 50 marks, are conducted. The **average of these two test marks** is taken and the marks are reduced to 05.

e) Model Examination**05 Marks**

Model Examination is conducted covering all the five units of 3 hours duration as per the end semester Autonomous examination question paper pattern for a total of 75 marks. The mark obtained is reduced to 05 Marks.

Test	Units	When to conduct	Marks	Duration
CAT - I	Unit - I & II	End of 6 th week	50	2 Hrs
CAT - II	Unit - III & IV	End of 12 th week	50	2 Hrs
Model Exam	Covering all the 5 Units (End Semester Exam question paper pattern)	End of 15 th week	75	3 Hrs

END SEMESTER AUTONOMOUS EXAMINATION - QUESTION PAPER PATTERN
(Question paper pattern common to all theory subjects unless it is specified)

PART A - (1 to 8)

Five Questions are to be answered out of **eight** questions for 2 marks each. (Question No. 8 will be the compulsory question and can be asked from any one of the units) (From each unit maximum of two 2 marks questions alone can be asked)

PART B - (9 to 16)

Five Questions are to be answered out of **eight** questions for 3 marks each. (Question No. 16 will be the compulsory question and can be asked from any one of the units) (From each unit maximum of two 3 marks questions alone can be asked)

PART C - (17 to 21)

Five Questions will be asked from each unit in the **either - or** pattern. Students have to answer all the five questions. Each question carries 10 marks. (Based on the discretion of the question setter, he/she can ask two five mark questions (with sub division A & sub division B) instead of one ten marks question, if required)

Any tables required, should be mentioned in the question paper like Steam table, IS Code Book, Steel table, Design Data Book, Mollier chart, Psychometric Chart etc.,

B. FOR PRACTICAL SUBJECTS:

The internal assessment mark for a total of 25 marks which are to be distributed as follows:-

a)	Practical Attendance	05 Marks
b)	Procedure / observation and tabulation / other practical related works	10 Marks
c)	Record writing	10 Marks
	TOTAL	25 Marks

Award of marks for attendance to each practical subject is as per the range given below.

80%	-	83%	}	1 Mark
84%	-	87%		2 Marks
88%	-	91%		3 Marks
92%	-	95%		4 Marks
96%	-	100%		5 Marks

Note:

- *All the Experiments / Exercises indicated in the syllabus should be completed and the same to be given for final Autonomous end semester examinations.*
- *The Record for every completed exercise should be submitted in the subsequent Practical classes and marks should be awarded for 20 for each exercise as per the above allocation.*
- *At the end of the semester, the average marks of all the exercises calculated for 20 marks and the marks awarded for attendance is added to arrive at the internal assessment. (20 + 5 = 25)*
- *The students have to submit duly signed bonafide record note books / files during the Exam.*
- *All the marks awarded for Assignments, Tests, Practical exercise marks and Attendance are entered in the Personal Log Book of the staff, who handles the subject. This is applicable to both, Theory and Practical subjects.*

C. PROJECT WORK:

The students have to do a project work in the final semester as part of the Curriculum and in partial fulfillment for the award of Diploma by the State Board of Technical Education and Training. The project work must be reviewed twice in a semester.

i) Internal Assessment Marks:

The internal assessment should be calculated based on the review of the progress of the work done by the student periodically as follows.

Details of Assessment	Period of Assessment	Max. Marks
First Review	06 th week	10
Second Review	12 th week	10
Attendance (same as Theory / Practical)	Entire semester	05
Total		25

ii) End Semester Exam:

A neatly prepared PROJECT REPORT as per the format is submitted by individual student during the project work & viva-voce end semester examinations.

Details of mark allocation	Max. Marks
Report Preparation, Demo, Viva-voce	60 Marks
4 questions from question bank consisting of Entrepreneurship, Environmental Management and Disaster Management will be asked. Out of four questions the students have to write any two questions from each topic. 2 questions x 3 topics = 6 questions (6 x 2 ½ = 15 Marks)	15 Marks
Total	75 Marks

Award of Diploma:**Classification of successful candidates:**

Classification of candidates who will pass out the final examinations from April 2019 onwards (Joined in first year in 2016-2017 academic year) in R5-scheme is being done as specified below.

First Class with Superlative Distinction:

A candidate will be declared to have passed in **First Class with Superlative Distinction**, if he secures not less than 75% of the marks in all the subjects and passes all the semesters in the first appearance itself and passes all subjects within the stipulated period of study of 3 / 2 years (3 years for regular entry / 2 years for lateral entry) without any break.

First Class with Distinction:

A candidate will be declared to have passed in **First Class with Distinction**, if he secures not less than 75% of the aggregate marks in all the semesters put together and passes all the semesters except the I and II semester in the first appearance itself and passes all subjects within the stipulated period of study of 3 / 2 years (3 years for regular entry 2 years for lateral entry) without any break.

First Class:

A candidate will be declared to have passed in **First Class**, if he secures not less than 60% of the aggregate marks in all the semesters put together and passes all the subjects within the stipulated period of study 3 / 2 years (3 years for regular entry / 2 years for lateral entry) without any break.

Second Class:

All other successful candidates will be declared as pass in **Second Class**.

Criteria for Pass:

1. No candidate shall be eligible for the award of Diploma unless he has undergone the prescribed course of study successfully and pass all the subjects prescribed in the curriculum.
2. A candidate shall be declared to have passed the examination in a subject if he secures not less than 40% in theory subjects and 50% in practical subjects out of the total prescribed maximum marks including both the Internal Assessment and the End semester Examinations marks put together, subject to the condition that he secures at least a minimum of 30 marks out of 75 marks in the Theory Examinations and a minimum of 35 marks out of 75 marks in the Practical Examinations.

Duration of a period in the Class Time Table:

The duration of each period of instruction is 01 hour and the total period of instruction hours excluding interval and lunch break in a day should be 07 hours corresponding to 07 periods of instruction (Theory & Practical).

Autonomous Examination - Exam Pattern:

Autonomous Examinations for all the Diploma Courses are being conducted in the following Pattern:

Semester	Span of Study	Examination
I, III & V Sem	June - October	October
II, IV & VI Sem	December - April	April

Requirements to appear for Examinations:

A candidate will be permitted to appear for the Autonomous examinations, only if he secures a minimum of overall 80% attendance in the semester concerned.

Condonation of Attendance:

The minimum overall percentage of attendance required for a candidate to become eligible to write the Autonomous end semester examination is 80%. Under extraordinary circumstances, for genuine and valid reasons, Medical reasons, the Principal may condone up to a maximum of 10% shortage to a candidate, subject to the condition that he satisfies all the other requirements to appear for the Autonomous Examination. Under no circumstances a candidate with attendance less than 70% shall be permitted to write the Autonomous Examinations. The condonement of 10% shortage shall not be done as a routine to all candidates, but only for genuine cases; it shall not be claimed as a matter of right by all candidates.

DIPLOMA IN INFORMATION TECHNOLOGY CURRICULUM OUTLINE

THIRD SEMESTER:

Subject Code	Name of Subject	Hours per week			
		Theory	Tutorial / Drawing	Practical	Total
R5-341	Basics of Electrical and Electronics Engineering	5	-	-	5
R5-342	C Programming	6	-	-	6
R5-343	Computer Hardware and Servicing	5	-	-	5
R5-344	Electrical & Electronics Engineering Practical	-	-	4	4
R5-345	C Programming Practical	-	-	5	5
R5-346	Computer Hardware & Servicing Practical	-	-	5	5
R5-347	Computer Applications Practical	-	-	4	4
Library cum Seminar		1	-	-	1
TOTAL		17		18	35

FOURTH SEMESTER:

Subject Code	Name of Subject	Hours per week			
		Theory	Tutorial / Drawing	Practical	Total
R5-441	Data Structures using C	5	-	-	5
R5-442	Visual Programming – I	5	-	-	5
R5-443	Relational Database Management System	4	-	-	4
R5-444	Networks and Administration	4	-	-	4
R5-445	Data Structures using C Practical	-	-	6	6
R5-446	Visual Programming - I & RDBMS Practical	-	-	6	6
R5-447	Life and Employability Skills Practical	-	-	4	4
Library cum Seminar		1	-	-	1
TOTAL		19		16	35

FIFTH SEMESTER:

Subject Code	Name of Subject	Hours per week			
		Theory	Tutorial / Drawing	Practical	Total
R5-541	Java Programming	5	-	-	5
R5-542	Visual Programming - II	5	-	-	5
R5-543	Software Engineering	4	-	-	4
R5-544.1	Elective Theory - I: Multimedia Systems	4	-	-	4
R5-544.2	Elective Theory - I: Cloud Computing				
R5-544.3	Elective Theory - I: Mobile Computing				
R5-545	Java Programming Practical	-	-	6	6
R5-546	Visual Programming - II Practical	-	-	6	6
R5-547.1	Elective Practical - I: Multimedia System Practical	-	-	4	4
R5-547.2	Elective Practical - I: Cloud Computing Practical				
R5-547.3	Elective Practical - I: Mobile Computing Practical				
Library cum Seminar		1	-	-	1
TOTAL		19	-	16	35

SIXTH SEMESTER:

Subject Code	Name of Subject	Hours per week			
		Theory	Tutorial / Drawing	Practical	Total
R5-641	Management Information System	5	-	-	5
R5-642	Open Source Software	5	-	-	5
R5-643.1	Elective Theory - II: Operating system	4	-	-	4
R5-643.2	Elective Theory - II: Web Programming				
R5-643.3	Elective Theory - II: Information Security				
R5-644	System Administration Practical	-	-	6	6
R5-645	Open Source Software Practical	-	-	6	6
R5-646.1	Elective Practical - II: Linux Practical	-	-	4	4
R5-646.2	Elective Practical - II: Web Programming Practical				
R5-646.3	Elective Practical - II: Information security Practical				
R5-647	Project Work	-	-	4	4
Library cum Seminar		1	-	-	1
TOTAL		15	-	20	35

ANNEXURE – II: SCHEME OF EXAMINATIONS

Subject Code	Name of Subject	Periods Per Week	Periods per Semester (15 weeks)	Scheme of Examination					Minimum for Pass
				Exam Duration in Hrs	Allocation of Marks				
					Internal	External	Total		
THIRD SEMESTER									
R5-341	Basics of Electrical and Electronics Engineering	5	75	3	25	75	100	40	
R5-342	C Programming	6	90	3	25	75	100	40	
R5-343	Computer Hardware and Servicing	5	75	3	25	75	100	40	
R5-344	Electrical and Electronics Engineering Practical	4	60	3	25	75	100	50	
R5-345	C Programming Practical	5	75	3	25	75	100	50	
R5-346	Computer Hardware & Servicing Practical	5	75	3	25	75	100	50	
R5-347	Computer Application Practical	4	60	3	25	75	100	50	
FOURTH SEMESTER									
R5-441	Data Structures using C	5	75	3	25	75	100	40	
R5-442	Visual Programming – I	5	75	3	25	75	100	40	
R5-443	Relational Database Management System	4	60	3	25	75	100	40	
R5-444	Networks and Administration	4	60	3	25	75	100	40	
R5-445	Data Structures using C Practical	6	90	3	25	75	100	50	
R5-446	Visual Programming - I and RDBMS Practical	6	90	3	25	75	100	50	
R5-447	Life and Employability Skills Practical	4	60	3	25	75	100	50	

Subject Code	Name of Subject	Periods Per Week	Periods per Semester (15 weeks)	Scheme of Examination				
				Exam Duration in Hrs	Allocation of Marks			Minimum for Pass
					Internal	External	Total	
FIFTH SEMESTER								
R5-541	Java Programming	5	75	3	25	75	100	40
R5-542	Visual Programming-II	5	75	3	25	75	100	40
R5-543	Software Engineering	4	60	3	25	75	100	40
R5-544.1	Elective Theory - I: Multimedia Systems	4	60	3	25	75	100	40
R5-544.2	Elective Theory - I: Cloud Computing							
R5-544.3	Elective Theory - I: Mobile Computing							
R5-545	Java Programming Practical	6	90	3	25	75	100	50
R5-546	Visual Programming - II Practical	6	90	3	25	75	100	50
R5-547.1	Elective Practical - I: Multimedia System Practical	4	60	3	25	75	100	50
R5-547.2	Elective Practical - I: Cloud Computing Practical							
R5-547.3	Elective Practical - I: Mobile Computing Practical							
SIXTH SEMESTER								
R5-641	Management Information System	5	75	3	25	75	100	40
R5-642	Open Source Software	5	75	3	25	75	100	40
R5-643.1	Elective Theory - II: Operating system	4	60	3	25	75	100	40
R5-643.2	Elective Theory - II: Web Programming							
R5-643.3	Elective Theory - II: Information security							
R5-644	System Administration Practical	6	90	3	25	75	100	50
R5-645	Open Source Software Practical	6	90	3	25	75	100	50
R5-646.1	Elective Practical - II: Linux Practical	4	60	3	25	75	100	50
R5-646.2	Elective Practical - II: Web Programming Practical							
R5-646.3	Elective Practical - II: Information Security Practical							
R5-647	Project Work	4	60	3	25	75	100	50

R5-SCHEME GENERAL EVALUATION PATTERN (THEORY)

External Examination	-	075 marks
Internal Assessment	-	025 marks
Total	-	100 marks

Condition for pass:

1. In external exam minimum **30** out of **75** marks
2. In internal there is **no** minimum
3. Internal + External must be **40** percent for pass.

Evaluation of Internal Assessment Marks:

The Internal Assessment marks for a total of 25 marks which are distributed as follows:-

a)	Subject Attendance	05 marks
b)	Assignments	05 marks
c)	Seminar	05 marks
d)	Continuous Assessment Tests	05 marks
e)	Model Examination	05 marks
	TOTAL	25 Marks

a) Subject Attendance**05 Marks**

(Award of marks for subject attendance to each Theory subject is as per the range given below)

80%	-	83%	}	1 Mark
84%	-	87%		2 Marks
88%	-	91%		3 Marks
92%	-	95%		4 Marks
96%	-	100%		5 Marks

b) Assignments**05 Marks**

For each theory subject three assignments are to be given and the average marks scored is reduced to 05 marks.

c) The Material submitted as well as Seminar presentation**05 Marks**

The students will be given topics either from the subjects (excluding the topics available in the syllabus) or general topics which will help to improve their grasping capacity as well as their capacity to express the subject in hand. The students will be allowed to prepare the material for the given topic using the library hour and they will be permitted to present the seminar (for the 3rd and 4th semesters, the students will be permitted to present the seminar as a group not exceeding six members and for the 5th and 6th semester students will present the seminar individually).

The concerned subject teacher will suggest topics and will evaluate the submitted materials and seminar presentation. (2.5 marks for the material submitted in writing and 2.5 marks for the seminar presentation). For each subject a minimum of two topics are given and the average marks scored is reduced to 05 marks.

d) Continuous Assessment Tests**05 Marks**

Two Continuous Assessment Tests (CAT), each of 2 hours duration for a total of 50 marks, are conducted. The **average of these two test marks** is taken and the marks are reduced to 05.

e) Model Examination**05 Marks**

Model Examination is conducted covering all the five units of 3 hours duration as per the End Semester Autonomous Examination question paper pattern for a total of 75 marks. The mark obtained is reduced to 5 Marks.

Test	Units	When to conduct	Marks	Duration
CAT-I	Unit - I & II	End of 6 th week	50	2 Hrs
CAT-II	Unit - III & IV	End of 12 th week	50	2 Hrs
Model Exam	Covering all the 5 Units. (End Semester Exam question paper pattern)	End of 15 th week	75	3 Hrs

END SEMESTER AUTONOMOUS EXAMINATION - QUESTION PAPER PATTERN
(Question paper pattern common to all theory subjects unless it is specified)

PART A - (1 to 8)

Five Questions are to be answered out of **eight** questions for 2 marks each. (Question No. 8 will be the compulsory question and can be asked from any one of the units) (From each unit maximum of two 2 marks questions alone can be asked)

PART B - (9 to 16)

Five Questions are to be answered out of **eight** questions for 3 marks each. (Question No. 16 will be the compulsory question and can be asked from any one of the units) (From each unit maximum of two 3 marks questions alone can be asked)

PART C - (17 to 21)

Five Questions will be asked from each unit in the **EITHER - OR** pattern. Students have to answer all the five questions. Each question carries 10 marks. (Based on the discretion of the question setter, he/she can ask two five mark questions (with sub division A & sub division B) instead of one ten marks question, if required)

R5-SCHEME GENERAL EVALUATION PATTERN (PRACTICAL)

External Examination	-	075 marks
Internal Assessment	-	025 marks
Total	-	100 marks

Condition for pass:

1. In external practical exam minimum **35** out of **75** marks
2. In internal there is **no** minimum
3. Internal + External must be **50** percent for pass.

Evaluation of Internal Assessment Marks:

The Internal Assessment marks for a total of 25 marks which are to be distributed as follows:-

a)	Practical Attendance	05 Marks
b)	Procedure / observation and tabulation / other practical related works	10 Marks
c)	Record writing	10 Marks
	TOTAL	25 Marks

Award of marks for attendance to each practical subject is as per the range given below.

80%	-	83%	}	1 Mark
84%	-	87%		2 Marks
88%	-	91%		3 Marks
92%	-	95%		4 Marks
96%	-	100%		5 Marks

Note:

- *All the Experiments / Exercises indicated in the syllabus should be completed and the same to be given for final Autonomous end semester examinations.*
- *The Record for every completed exercise should be submitted in the subsequent Practical classes and marks should be awarded for 20 for each exercise as per the above allocation.*
- *At the end of the semester, the average marks of all the exercises calculated for 20 marks and the marks awarded for attendance is added to arrive at the internal assessment. (20 + 5 = 25)*
- *The students have to submit duly signed bonafide record note books / files during the Exam.*
- *All the marks awarded for Assignments, Tests, Practical exercise marks and Attendance are entered in the Personal Log Book of the staff, who handles the subject. This is applicable to both, Theory and Practical subjects.*

Project Work:

The students have to do a project work in the final semester as part of the Curriculum and in partial fulfillment for the award of Diploma by the State Board of Technical Education and Training. The project work must be reviewed twice in a semester.

a) Internal Assessment:

The internal assessment should be calculated based on the review of the progress of the work done by the student periodically as follows.

Details of Assessment	Period of Assessment	Max. Marks
First Review	06 th week	10
Second Review	12 th week	10
Attendance (same as Theory / Practical)	Entire semester	05
Total		25

b) End Semester Exam:

A neatly prepared PROJECT REPORT as per the format is submitted by individual student during the project work & viva-voce end semester examinations.

Details of mark allocation	Max. Marks
Report Preparation, Demo, Viva-voce	60 Marks
4 questions from question bank consisting of Entrepreneurship, Environmental Management and Disaster Management will be asked. Out of four questions the students have to write any two questions from each topic. 2 questions x 3 topics = 6 questions (6 x 2 ½ = 15 Marks)	15 Marks
Total	75 Marks

**DETAILED SYLLABUS
THIRD SEMESTER
R5-341 BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING**

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-341 BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	FUNDAMENTALS OF ELECTRICITY AND ELECTRICAL SAFETY	13
II	ANALOG DEVICES	13
III	BOOLEAN ALGEBRA AND LOGIC GATES	13
IV	SEQUENTIAL LOGIC SYSTEM	13
V	MICROCONTROLLER APPLICATIONS	13
Total Instruction Hours		65

UNIT - I**FUNDAMENTALS OF ELECTRICITY, BATTERIES AND UPS****13 Hrs**

Fundamentals of Electricity: Difference between AC and DC – advantages of AC over DC – definition and Units of Voltage – Current – Potential difference – Power – Energy – Resistance – Conductance – Resistivity – concepts of open and short circuit – Ohm's law – Kirchoff's Current and Voltage law (definition only) – series circuits – parallel circuits – series parallel circuits – simple problems on Ohm's law. AC and DC circuits-sources and its applications – definition of cycle – frequency – time period – amplitude – peak value – average value and RMS value – define peak factor and form factor – concept of phase – phase difference and phase angle – single phase and 3 phase (definition only) – meaning of lagging and leading sine wave – advantages of three phase over single phase

Batteries: Classification of cells – construction of Lead acid cell – methods of charging – care and maintenance of Lead acid battery – indications of a fully charge battery – maintenance free batteries

UPS: Need for UPS – online and offline UPS – definition – block Diagram – explanation of each block – merits and demerits of on line and off line UPS – need of heat sink – specification and ratings – maintenance of UPS including batteries

UNIT - II**TRANSFORMER AND SPECIAL MOTORS****13 Hrs**

Single Phase transformer: Working principle and construction of transformer – EMF equation of transformer (no derivation) – voltage and current ratio of a transformer – efficiency – losses in a transformer – Auto transformer – applications – step up and step down transformer (definition only)

Special Motors: Stepper motor – definition – working principle – types and applications – servo motors – definition – working principle – types and applications – factors to be considered for selecting a motor for a particular application

Electrical Safety: Electric shock – prevention – precautions against electric shock – earthing – need for earthing – types of earthing – plate and pipe earthing – fuses – need – types of fuses

UNIT - III

ANALOG DEVICES

13 Hrs

Semiconductor Diodes: Review of PN junction diode – construction – working and its characteristics – Zener diode – construction – symbol – characteristics (forward and reverse) – Avalanche and Zener breakdown – applications of Zener diode – Light Emitting Diodes – operation – construction and characteristics – LDR – principle of operation and characteristics – Photo diode – principle of operation (concept only)

Rectifiers: Definition – need of rectification – circuit diagram – operation – i/p and o/p waveforms of half wave – full wave – bridge rectifiers (without filters) – uses of filters in rectifier circuit – ripple factor – efficiency and PIV (No derivation) – comparison

SCR: Introduction – construction – operation – working and its VI characteristics

Bipolar Junction Transistor: Definition – principle of NPN and PNP transistor – symbol – transistor terminals – operating principle (NPN transistor only) – configuration of transistor – comparison between CB, CE and CC – input and output characteristics of CE configuration – transistor application as switch.

UNIT - IV

BOOLEAN ALGEBRA AND LOGIC GATES

13 Hrs

Number representation: Decimal – Binary – Octal and Hexa decimal number systems – conversion of number from one number system to another (without decimal point) – BCD CODE – ASCII Codes – parity bit – use of a parity bit – odd parity and even parity

Logic gates: Positive and negative logic system – definition – truth table – symbol and logical equations of AND – OR – NOT – EXOR – EXNOR (Only 2-inputs) gates – universal gates – NAND – NOR – symbol and truth table

Boolean Algebra: Basic laws of Boolean algebra – De-Morgan's theorem and proofs – Duality theorem – simplification of logical equations using Boolean laws – De-Morgan's theorem – two, three and four variable Karnaugh map

Arithmetic Circuits: Half adder and full adder – truth table – circuit diagram – half subtractor and full subtractor – truth table – circuit diagram

Combinational logic circuits: Multiplexer – De-multiplexer – Encoder – Decoder (Definition and basic circuits only) – Comparator circuit for two three bit words.

UNIT - V

SEQUENTIAL LOGIC SYSTEM

13 Hrs

Flip-flops: Basic principle of operation – S-R, D flip-flop – Operation and truth table – Race Condition – JK flip-flop – T flip-flop – toggling – edge triggered flip-flop – level triggered flip-flop – need for a master slave flip-flop – J-K master slave flip-flop

Counters: Asynchronous counter – 4 bit Asynchronous counter – Mod-N counter – decade counter – synchronous counter – 4 bit synchronous binary counter – up and down counter – applications of counters

Registers: Shift register – block diagram representation and wave forms of serial-in serial-out – serial-in parallel-out – parallel-in serial-out – parallel-in parallel-out – applications of shift registers.

Text Books:

1. Electrical Technology - Vol I and II: B.L.Theraja, S.Chand & Co , New Delhi, Revised First Edition, 2012
2. Modern Digital Electronics - R.P. Jain Tata Mc-Graw Hill, New Delhi, Third Reprint 2010

Reference Books:

1. Digital Electronics and Logic Design, Jaydeep Chakravarthy, University Press, Hyderabad, I Ed. 2012
2. Basic Electrical Engineering, V.N.Mittle, Tata Mc-Graw Hill, NewDelhi, First Edition
3. Basic Electrical and Electronics Engineering, R. Muthusubramanian, R.Salivajanan, Tata Mc-Graw Hill, New Delhi, Seventh Reprint 2011
4. Principles of Electronics, V.K.Mehta, S.Chand & Co, NewDelhi, Second Edition
5. Digital Electronics, G.K.Kharate, Oxford University Press, 2010
6. Principles of Digital Electronics: K. Meena, PHI learning private Ltd, 2009

Instruction Hours	65 Hours
Continuous Assessment Test 1, Test 2 & Model Examination	07 Hours
Revision / Assignments / Discussions	03 Hours
Total	75 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-342 C PROGRAMMING

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-342 C PROGRAMMING	6 Hrs	90 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	PROGRAM DEVELOPMENT & INTRODUCTION TO C	16
II	DECISION MAKING, ARRAYS AND STRINGS	16
III	FUNCTIONS , STRUCTURES AND UNIONS	16
IV	POINTERS	16
V	FILEMANAGEMENT & PREPROCESSORS	16
Total Instruction Hours		80

UNIT - I**PROGRAM DEVELOPMENT & INTRODUCTION TO C****16 Hrs**

Program Algorithm & Flow Chart: Program development cycle- programming language levels & features – algorithm – properties & classification of algorithm, flow chart – symbols, importance & advantage of flow chart

Introduction C: History of C – features of C – structure of C program – compiling, link & run a program – diagrammatic representation of program execution process

Variables, Constants & Data types: C character set – tokens – constants – key words – identifiers and variables – data types and storage – data type qualifiers – declaration of variables – assigning values to variables- declaring variables as constants

C operators: Arithmetic, logical, assignment, relational, increment and decrement, conditional, bitwise, special operator precedence and associativity – C expressions – Arithmetic expressions – Evaluation of expressions – Type cast operator

I/O statements: Formatted input, formatted output, unformatted I/O statements

UNIT - II

DECISION MAKING, ARRAYS AND STRINGS

16 Hrs

Branching: Introduction – simple if statement – if-else – else-if ladder, nested if-else – switch statement – go statement

Looping statements: While, do-while statements, for loop, break & continue statement

Arrays: Declaration and initialization of one dimensional, two dimensional and character arrays – accessing array elements

Strings: Declaration and initialization of string variables, reading string, writing strings – string handling functions (strlen(), strcat(), strcmp())

UNIT - III

FUNCTIONS, STRUCTURES AND UNIONS

16 Hrs

Built-in functions: Math functions – console I/O functions – standard I/O functions – character oriented functions

User defined functions: Defining functions & needs – scope and life time of variables – function call, return values, storage classes – category of function – recursion

Structures and Unions:- Structure – definition, initialization, arrays of structures, arrays with in structures, structures within structures, structures and functions – unions – structure of union – difference between union and structure

UNIT - IV

POINTERS

16 Hrs

Pointers: Definition – advantages of pointers – accessing the address of a variable through pointers – declaring and initializing pointers – function arguments – pointers to functions – pointers and structures – pointers to pointers

Dynamic memory management: Introduction – dynamic memory allocation – allocating a block memory (MALLOC) – allocating multiple blocks of memory (CALLOC) –releasing the used space: free – altering the size of a block (REALLOC)

UNIT - V

FILE MANAGEMENT AND PREPROCESSORS

16 Hrs

File Management: Introduction – defining and opening a file – closing a file – input / output operations on files – error handling during i/o operations – random access to files

Command line arguments: Introduction – argv and argc arguments

The preprocessor: Introduction – macro substitution, file inclusion, compiler control directives.

Text Books:

1. Programming in ANSI C, E.Balagurusamy, TataMc-Graw Hill, New Delhi 2006, 3rd Edition
2. A Text Book on C E.Karthikeyan PHI Private Limited, New Delhi 2008

References:

1. Programming and Problem solving using C, ISRD Group, Lucknow, TataMc-Graw Hill, New Delhi Sixth Reprint 2010
2. Let us C, Yeswanth Kanetkar, BPB Publications, Fourth Revised Edition
3. Programming in C, D.Ravichandran, New Age International Publishers, Chennai First Ed,1996
4. Computer Concepts & Programming in C, Dr.S.S.Khandare S.Chand & Co. New Delhi, I Ed. 2010

Instruction Hours	80 Hours
Continuous Assessment Test 1, Test 2 & Model Examination	07 Hours
Revision / Assignments / Discussions	03 Hours
Total	90 Hours

*Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-343 COMPUTER HARDWARE AND SERVICING

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-343 COMPUTER HARDWARE AND SERVICING	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	MOTHERBOARD COMPONENTS	13
II	MEMORY STORAGE DEVICES	13
III	I/O DEVICES AND INTERFACE	13
IV	BIOS, POST AND MOBILE PHONE COMPONENTS	13
V	MOBILE PHONE SERVICING	13
Total Instruction Hours		65

UNIT - I

MOTHERBOARD COMPONENTS

13 Hrs

Introduction: Parts - mother board, sockets, expansion slots, memory, power supply, drives and front panel and rear panel connectors – hardware, software and firmware

Processors: Architecture and block diagram of multi core processor (any one), features of new processor (definition only) – chipsets (concepts only).

Bus Standards: Overview and features of PCI, AGP, USB, PCMCIA processor – BUS – High.

UNIT - II

MEMORY STORAGE DEVICES

13 Hrs

Primary Memory: Introduction-Main memory, cache memory – DDR2 – DDR3, RAM versions – 1TB RAM

Secondary Storage: Hard Disk – construction – working principle – specification of IDE, ultra ATA, serial ATA; HDD partition - formatting – troubleshooting hard disk drives
Removable Storage: CD & DVD construction – reading & writing operations; CD-R, CD-RW, DVD-ROM, DVD-RW; construction and working of DVD Reader / Writer.
Blue-ray: Introduction – disc parameters – recording and playback principles

UNIT - III

I/O DEVICES AND INTERFACE

13 Hrs

Keyboard and Mouse: Keyboard: signals – operation of membrane and mechanical keyboards–troubleshooting; wireless keyboard. Mouse – types, connectors, operation of optical mouse and troubleshooting

Printers: Introduction – types of printers – dot matrix, laser, line printer – operation– construction – features and troubleshooting

I/O Ports: Serial – parallel – USB – game port – Bluetooth interface – IR connector – fire wire – signal specification problems with interfaces

Displays and Graphic Cards: Panel displays – principles of LED, LCD and TFT Displays. SVGA port signals – common problems and solutions

Power Supply: SMPS: Principles of operation and block diagram of ATX power supply – connector specifications

UNIT - IV

BIOS, POST AND MOBILE PHONE COMPONENTS

13 Hrs

BIOS: Standard CMOS setup – advanced BIOS setup – power management – advanced chipset features – PC Bios communication – upgrading BIOS, Flash BIOS setup.

POST: Definition – IPL hardware – POST test sequence – beep codes and error messages

Mobile phone components: Basics of mobile communication – components - battery - antenna – ear piece – microphone – speaker – buzzer – LCD – keyboard. Basic circuit board components – names and functions of different ICs used in mobile phones

UNIT - V

MOBILE PHONE SERVICING

13 Hrs

Tools & Instruments used in mobile servicing: Mobile servicing kit – soldering and de-soldering components using different soldering tools – use of multi-meter and battery booster

Installation & Troubleshooting: Assembling and disassembling of different types of mobile phones – installation of OS – fault finding & troubleshooting – jumpering techniques and solutions

Software and Antivirus: Flashing – Formatting – Unlocking – Use of secret codes – downloading – routing; mobile viruses – precautions – antivirus software

Text books:

1. IT Essentials: PC Hardware and Software - Companion Guide, David Anfinson / Ken Quamme, CISCO Press-2008
2. The complete PC upgrade, Mark Minasi, BPB Publication 1997

Reference books:

1. Troubleshooting, Maintaining and Repairing PCs, Stephen i Bigelow Tata MCGraw Hill Publication, 2004
2. Computer Networks, AndrewS.Tanenbaum, Prentice-Hall of India, New Delhi2002
3. Data Communication and networking, Behrouz A.Forouzan Tata Mc-Graw Hill, New Delhi, 2006
4. Computer Networks, Achyut Godbole, Tata Mc-Graw Hill - New Delhi
5. Principles of Wireless, Kaveh Pahlavan and Prashant Pearson Education2002

Instruction Hours	65 Hours
Continuous Assessment Test 1, Test 2 & Model Examination	07 Hours
Revision / Assignments / Discussions	03 Hours
Total	75 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-344 ELECTRICAL AND ELECTRONICS ENGINEERING PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-344 ELECTRICAL AND ELECTRONICS ENGINEERING PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

LIST OF EXPERIMENTS

1. Construct the circuit and draw the forward characteristics of PN junction diode and find input resistance.
2. Construct the circuit and draw the reverse characteristics of Zener diode and find breakdown voltage.
3. Construct and test full- wave rectifier with and without filter.
4. Construct and test the Bridge – bridge rectifier circuit.
5. Construct the circuit and draw the characteristics of LDR.
6. Construct the circuit and draw the VI characteristics of LED.
7. Draw the characteristics of common emitter configuration and determine its input Impedance, output impedance and current gain
8. Verify the truth tables of NAND,AND,NOR,OR,NOT,XOR using IC's
9. Construct and verify half adder and half subtractor
10. Construct and verify the truth table of full adder
11. Construct and verify the truth table of full subtractor
12. Verify the truth tables of RS, D, T and JKFF
13. Construct and test the parity generator and checker function using IC 74180.
14. Construct and test the 4 bit ripple counter (IC7493)
15. Construct and test shift register function in SIPO mode (IC 7495)

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim and Procedure	05
Writing any one Experiment (Circuit diagram, Tabular diagram)	30
Column, Truth table / Equation / Formula	35
Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

R5-345 C PROGRAMMING PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-345 C PROGRAMMING PRACTICAL	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

LIST OF EXPERIMENTS

1. Write a C Program to calculate simple and compound interest
2. Write a C Program to swap two variables using (i) third variable and (ii) without using a third variable.
3. Write a C Program to find the largest number between given three numbers.
4. Program to check whether the given string is palindrome or not.
5. Read a string, which consists of both lower case characters and upper case characters. Convert the lowercase character into upper case and vice versa. Display the new string.
6. Program to prepare the total marks for N students by reading the Reg. No., Name, Mark1 to Mark6 by using array of structures.
7. Write a function to calculate the sum and average of given three numbers. Write a main function to call the above function
8. Write a program to print the address of a variable and increase the content by 5 and print the new value.
9. Write a macro in C to swap two data values.
10. Read an integer number. Find the number of digits and sum of all individual digits and also print the above number in reverse order.

- 11 Using Switch ... Case statement; print the given number into equivalent word. (For example if the input is 3, then the output should be THREE)
12. Write a program to find the factorial of a given number (i) Without recursion (ii) With recursion
13. Write a program to arrange the given N names in alphabetical order.
14. Program to read ten values to an array variable. Use pointers to locate and display each value.
15. Write a C program to print the abbreviation of an Organization Name. (For example if the input is “BHARAT HEAVY ELECTRONICS LIMITED”, then the output should be “BHEL”.)

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Programme Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	65 Hours
Revision / Repetition	10 Hours
Total	90 Hours

R5-346 COMPUTER HARDWARE & SERVICING PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-346 COMPUTER HARDWARE & SERVICING PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

LIST OF EXPERIMENTS

1. HARD DISK a) Install Hard Disk. B)Configure CMOS-Setup c) Partition and format Hard Disk.
2. Practice with scan disk, disk cleanup, disk De-fragmentation, virus detecting and rectifying software.

3. Install and configure a DVD writer & recording a blank DVD.
4. Printer Installation and troubleshooting a) Install and configure dot matrix printer
b) troubleshoot the above printers
5. Printer Installation and troubleshooting a) Install and configure laser printer
b) troubleshoot the above printers
6. Android apps downloading and deployment.
7. Flashing, unlocking and formatting memory cards in mobile phones.
8. Assemble a system with add on cards and check the working condition of the system and install Dual OS.
9. Do the following cabling works in a network a) cable crimping b) straight through cabling c) cross over cabling d) testing the crimped cable using a cable tester
10. Configure Host IP, Subnet Mask and Default Gateway in a system in LAN
11. Configure Internet connection and use IPCONFIG, PING / Tracert and Netstat utilities to debug the network issues.
12. Install and configure network devices: Switch and Routers
13. Install and configure wired and wireless NIC and transfer files between systems
14. Transfer files between systems in LAN using FTP configuration.
15. Install a printer in LAN and share it in the network.

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

R5-347 COMPUTER APPLICATIONS PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			
	R5-347 COMPUTER APPLICATIONS PRACTICAL	Hours / Week	Hours / Sem	Marks		
4 Hrs		60 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	3 Hrs

LIST OF EXPERIMENTS

1.
 - a. Installing screen saver and change the monitor resolution by 1280 x 960
 - b. Setting wall papers
 - c. Creating, moving, deleting and renaming a folder
 - d. Copy, paste and cut a folder/file
 - e. Displaying the properties for a file or folder

2.
 - a. Restoring files and folders from Recycle bin
 - b. Creating short cuts for folder/file
 - c. Finding a file or folder by name
 - d. Selecting and moving two or more files/folders using mouse
 - e. Sorting folders / files

3. Create the following table and perform the operations given below
 - Arrange the cell alignment for the complete table as center, center (both horizontally and vertically)
 - Fill the days column and hours row with 15% gray color
 - Implement merging and splitting two or more cells wherever necessary
 - Apply alternative foreground colors for columns

DAYS	1	2	3	4	5	6	7	8
MON	← TEST →		A: JPP			CA	RDBMS	TUT
	B: RDBMS							
TUE	CA	OOP	CN	RDBMS	A: RDBMS			
	B: JPP							
WED	CN	RDBMS	OOP	RDBMS	COMMUNICATION		CN	CA
THU	OOP	A: JPP			CA	RDBMS	CN	OOP
		B: RDBMS						
FRI	COMMUNICATION		A: RDBMS		OOP	CN	RDBMS	CA
			B: JPP					
SAT	OOPS	RDBMS	N	CA	-----			

4. Create a standard covering letter and use mail merge to generate the customized letters for applying to a job in various organizations. Also, create a database and generate labels for the applying organizations.

5. Create a news letter of three pages with two columns text. The first page contains some formatting bullets and numbers. Set the document background color and add 'Confidential' as the watermark. Give the document a title which should be displayed in the header. The header/ footer of the first page should be different from other two

pages. Also, add author name and date/ time in the header. The footer should have the page number.

6. Create a result sheet containing Candidate's Register No., Name, and Marks for six subjects. Calculate the total and result. The result must be calculated as below and failed candidates should be turned to red.

Result is Distinction if Total $\geq 70\%$

First Class if Total $\geq 60\%$ and $< 70\%$

Second Class if Total $\geq 50\%$ and $< 60\%$

Pass if Total $\geq 35\%$ and $< 50\%$ Fail otherwise

Create a separate table based on class by using auto filter feature.

7. Create a table of records with columns as Name and Donation Amount. Donation amount should be formatted with two decimal places. There should be at least twenty records in the table. Create a conditional format to highlight the highest donation with blue color and lowest donation with red color. The table should have a heading.

8. Create line chart, bar chart and pie charts to highlight the sales of the company for three different periods for the following data.

SALES BAR CHART

Period	Product 1	Product 2	Product 3	Total
JAN	35	40	50	125
FEB	46	56	40	142
MAR	70	50	40	160

9. Create Database to maintain at least 10 addresses of your class mates with the following constraints
- Roll no. should be the primary key.
 - Name should be not null
10. Create a student's table with the following fields: Sr. No., Reg. No, Name, Marks in 5 subjects. Calculate total and percentage of 10 students. Perform the following queries.
- To find the details of distinction student
 - To find the details of first class students
 - To find the details of second class students
11. Design a report for the above exercise to print the consolidated result sheet and mark card for the student.
12. Make a marketing presentation of any consumer product with at least 10 slides. Use different customized animation effects on pictures and clip art on any four of the ten slides.
13. Create a Presentation about our institution / any subject with different slide transition & sound effect.

14. Create an e-mail id and perform the following

- Write an e-mail inviting your friends to your Birthday Party.
- Make your own signature and add it to the e-mail message.
- Add a word attachment of the venue route
- Send the e-mail to at least 5 of your friends.

15. Create a presentation on Google docs. Ask your friend to review it and comment on it. Use “Discussion” option for your discussions on the presentation.

Reference Books:

1. MS OFFICE – Dr. S.S. Srivastava, Laxmi Publications Pvt. Ltd.
2. 2007 MS Office System Plain & Simple – Joyce & Moon, PHI Learning
3. MS Office Home and Student 2007 step by step – Preppernan, Cox & Frye, PHI Learning

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

FOURTH SEMESTER

R5- 441 DATA STRUCTURES USING C

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-441 DATA STRUCTURES USING C	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION TO DATA STRUCTURES, ARRAYS AND STRINGS	13
II	STACKS , RECURSION AND QUEUES	13
III	LINKED LISTS	13
IV	TREES AND GRAPHS	13
V	SEARCHING , SORTING AND HASHING	13
Total Instruction Hours		65

UNIT - I**INTRODUCTION TO DATA STRUCTURES - ARRAYS AND STRINGS****13 Hrs**

Introduction to Data Structures: Introduction – data and information – elementary data structure organization – types of data structures – primitive and non-primitive data structures – operations on data structures: traversing, inserting, deleting, searching, sorting, merging

Arrays: Introduction – characteristics of array – one dimensional array – two dimensional arrays – multi-dimensional arrays – advantages and disadvantages of linear arrays – row major order – column major order – operations on arrays with algorithms (searching, traversing, inserting, deleting)

Strings: Strings and their representations – string conversion – string manipulation – string arrays

UNIT - II**STACKS, RECURSION AND QUEUES****13 Hrs**

Definition of a Stack: Operations on stack (PUSH & POP) – implementing push and pop operations – implementation of stack through arrays

Applications of Stack: Reversing a list – conversion of infix to postfix expression – evaluation of postfix expression – algorithm for evaluating infix to prefix expression

Recursion: Recursive definition – algorithm and C function for : multiplication of natural numbers – factorial function – GCD function – properties of recursive algorithms / functions – advantages and disadvantages of recursion

Queues: The queue and its sequential representation – implementation of Queues and their operations – implementation of circular queues and their operations – Dequeue and priority queues (concepts only)

UNIT - III**LINKED LISTS****13 Hrs**

Introduction to linked list: Terminologies: Node, Address, Pointer, Information, Null Pointer, Empty list - type of lists: singly linked list, doubly linked list, circular list – representation of singly linked lists in memory – difference between linked & sequential list – advantages and disadvantages of linked list

Operations on a singly linked list (only algorithm): Traversing a singly linked list – Searching a singly linked list – Inserting a new node in a singly linked list (front, middle, end) – deleting a node from a singly linked list (front, middle, rear) – doubly linked list – circular linked lists (concepts only, no implementations)

UNIT - IV TREES AND GRAPHS

13 Hrs

Trees: Terminologies: Degree of a node – degree of a tree – level of a node – leaf node – Depth / Height of a tree – in-degree & out-degree – path, ancestor & descendant nodes – siblings

Type of Trees: Binary tree – list representation of Tree

Binary tree traversal (only algorithm): In order traversal, Preorder traversal, Post order traversal – expression tree – binary search tree – creation of a binary search tree without duplicate node

Graphs: Introduction – Terminologies: graph, node (Vertices), arcs (edge), directed graph, in-degree, out-degree, adjacent, successor, predecessor, relation, weight, path, length – representations of a graph – adjacency matrix representation – adjacency list representation – applications of graph

UNIT - V SORTING, SEARCHING AND HASHING

13 Hrs

Sorting Techniques: Introduction – algorithms and “ C” programs for Insertion sort, Bubble sort – algorithms only :Radix sort, Selection sort, Quick sort

Searching: Introduction – algorithms and “ C” programs for linear search and binary search

Hashing: Hash tables – methods – hash function – collision resolution techniques

Text books:

1. Data Structures, Seymour Lipschutz, Schaums outlines, TMH Private Limited, New Delhi Indian Adapted Edition 2006. 20th Reprint 2011
2. Data Structures with C, Seymour Lipschutz, Schaums outlines, TMH Private Limited, New Delhi First Reprint 2011

References:

1. Data Structures and Algorithms, G.A.Vijayalakshmi Pai, TMGH, New Delhi, 6th Reprint 2011
2. Data Structures Using C -1000 Problems, Sudipta Mukherjee TMGH, New Delhi Second Reprint 2010
3. Introduction to Data structures Using C, Venkatesh N.Baitipuli, University Science Press, Chennai First Edition, 2009
4. Classic Data Structures, Debasis Samanta, Prentice Hall of India, New Delhi 2009 / Second Edition

Instruction Hours	65 Hours
Continuous Assessment Test 1, Test 2 & Model Examination	07 Hours
Revision / Assignments / Discussions	03 Hours
Total	75 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-442 VISUAL PROGRAMMING - I

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-442 VISUAL PROGRAMMING - I	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	EVOLUTION OF OBJECT-ORIENTED	13

II	CLASS, OPERATORS AND STATEMENTS	13
III	ARRAYS, METHODS AND INHERITANCE	13
IV	EXCEPTION – HANDLING AND WINDOWS APPLICATIONS - I	13
V	WINDOWS APPLICATIONS – II AND DATABASE CONNECTIVITY	13
Total Instruction Hours		65

UNIT - I**EVOLUTION OF OBJECT- ORIENTED****13 Hrs**

Evolution of Object-Oriented: Features of object-oriented programming – advantages of object – oriented programming – limitations of object – oriented programming – applications of object – oriented programming

Features of .Net: Start page – solution explorer window – class view window – code window – compiling the code – code debugging

Basic Elements of C#: .Net framework – C# language – features of C# – compilation of a C# program – character set of C# – lexical elements of C# – escape sequences – identifiers – keywords – operators – punctuators – preprocessing directives

UNIT - II**CLASS, OPERATORS AND STATEMENTS****13 Hrs**

Class: C# Program Structure – methods – instance methods – simple C# program – simple i/o operations – creating of objects using new operator – member access – invoking methods – constructor – destructor – default constructors – the this reference – access modifiers – static members – formatted output – header of main() method – enumeration

Operators: Arithmetic operators – relational and equality operators – logical operators – assignment operators – conditional operator or ternary operator – type conversion – string concatenation – the is operator – the checked and unchecked operators

Statements Branching: Introduction – simple if statement – if-else – else-if ladder – nested if-else – switch statement – go statement

Looping statements: While, do-while statements, for loop, break & continue statement – lock statement – labeled statement – the checked and unchecked statements

UNIT - III**ARRAYS, METHODS AND INHERITANCE****13 Hrs**

Arrays: Arrays in C# – classification of arrays – creation of arrays – creation of regular arrays – creation of jagged arrays – one-dimensional arrays – two dimensional arrays – difference between regular and jagged arrays – initialization of arrays – initialization of jagged arrays

Inheritance: Inheritance – when to use inheritance – derived class - syntax for derived class – how to implement inheritance – types of inheritance – accessibility – namespaces – inner classes – multilevel inheritance – multiple inheritance - dynamic binding – abstract methods and abstract class – restrictions on accessibility – advantages of inheritance

UNIT - IV**EXCEPTION – HANDLING AND WINDOWS APPLICATIONS – I****13 Hrs**

Exception-Handling: Default exception – handling mechanism – user-defined exception – handling mechanism – backtracking – “throw” statement – custom exception

Windows Applications - I: Event-driven programming model – important classes used in windows applications – textbox and label controls – button control – check box control – radio button control – group box control – list box control – combo box control – the month calendar control

UNIT - V

WINDOWS APPLICATIONS – II AND DATABASE CONNECTIVITY

13 Hrs

Windows Applications – II: Docking controls – progress bar control – track bar control – panel control – tree view control – splitter window – the menu class – the menu item class – dialog box – the toolbar class – the status bar class.

Database Connectivity: Advantages of ADO.Net – managed providers – developing a simple ADO.Net based application – creation of a data table – retrieving data from tables – table updating

Text Books:

1. Programming C#, 2nd Ed., Jesse Liberty, O'Reilly, Second Edition February 2002 ISBN: 0-596-00309-9
- 2) Pro ASP.NET 2.0 in C# 2005, 2nd Edition Matthew MacDonald and Mario Szpuszta.

Reference Books:

- 1) Professional C#, Third Edition, Simon Robinson, Christian Nagel, Jay Glynn, Morgan Skinner, Karli Watson, Bill Evjen

Instruction Hours	65 Hours
Continuous Assessment Test 1, Test 2 & Model Examination	07 Hours
Revision / Assignments / Discussions	03 Hours
Total	75 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-443 RELATIONAL DATABASE MANAGEMENT SYSTEM

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-443 RELATIONAL DATABASE MANAGEMENT SYSTEM	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	DATABASE SYSTEM CONCEPT AND DATA MODELING	10
II	RELATIONAL DATA MODEL	10
III	INTERACTIVE SQL	10
IV	SQL PERFORMANCE TUNING & INTRODUCTION TO PL/SQL.	10

V	PL/SQL	10
Total Instruction Hours		50

UNIT - I**DATABASE SYSTEM CONCEPT AND DATA MODELING****10 Hrs**

Basic Database Concepts: Data, database, database management system – file base data management – disadvantages of file system – database systems – need for database – advantages of using a database – characteristics of data in a database – functions of DBMS – components of a database – comparison between database and file – processing systems – data dictionary – data abstraction – data independence – logical and physical data independence

Architecture: Overall architecture of DBMS – three level architecture

Data Models: Hierarchical, networking, relational data models – E-R model – E-R diagrams – EER model – advantages and disadvantages of each model

Advanced Concepts: Introduction to data warehousing and data mining – multimedia databases

Client/Server Technology: Client – server – distributed and co-operative processing – peer-to-peer processing – application components – transaction management

UNIT - II**RELATIONAL DATA MODEL****10 Hrs**

Relational Structure: Characteristics of relational database model – CODD's rules – tables (relations), rows (tuples), domains, attributes, extension, intention

Keys: candidate key, primary key, foreign key, super keys, unique keys.

Data Constraints: Referential integrity constraints, entity integrity constraints – constraints like primary key constraint – unique, check constraint strong entity, weak entity

Normalization: Introduction – purpose of normalization – definition of functional dependence (FD) relational database design – normal forms: 1NF, 2NF, 3NF, BCNF, 4NF and 5 NF

Database Administration: DBA tasks – DBA tools – user privileges – performance monitoring and tuning – query tracing - backup and recovery

UNIT - III**INTERACTIVE SQL****10 Hrs**

Introduction to SQL: Advantages of SQL – invoking SQL*PLUS, the oracle data – types, Data Definition Language (DDL), Data Manipulation language (DML), Data Control Language (DCL), Data Query Language (DQL) and all related commands.

Queries using Group by and Order by clause & Join: Querying a single table – ordering results – grouping the results – joins – types of joins – sub queries

Operators: Logical, value, syntax and query expression operators – set operators

Functions: Character, arithmetic, date and time, group and miscellaneous functions – commit, rollback, savepoint

Format models: Character, numeric & date format models.

UNIT - IV**SQL PERFORMANCE TUNING & INTRODUCTION TO PL/SQL****10 Hrs**

Views: Introduction – advantages of views – the create view command – updating views – views and joins – views and sub queries – dropping views

Sequences: Creating sequences – altering sequences – dropping sequences

Indexes: Index types – creating of an index: simple unique and composite index – dropping indexes.

Snapshots: Creating a snapshot – altering snapshot – dropping a snapshot

Introduction to PL/SQL: The PL/SQL syntax – PL/SQL block structure – fundamentals of PL/SQL – advantages of PL/SQL data types

Control Structure: Conditional control – iterative control – sequential control

UNIT - V**PL/SQL****10 Hrs**

Exception handling: Pre-defined exception – user defined exception.

Cursors: Implicit and explicit cursors – declaring – opening and closing a cursor – fetching a record from cursor – cursor for loops – parameterized cursors

Procedures: Advantages – creating – executing and deleting a stored procedure

Functions: Advantages – creating – executing and deleting a function

Database Triggers: Use of database triggers – how to apply database triggers – types of triggers – syntax for creating trigger – deleting trigger

Text Books:

- 1.Database System Concepts, Silber Schatz A, Sixth Edition, 2005 and Korth H McGrawHill, New Delhi
- 2.Database Management System , ISRD Group, TMH, First Edition, New Delhi, Eleventh reprint, 2011

Reference Books:

- 1.Murach's MySQL Joel Murach Shroff / Murach(2012)
- 2.NO SQL Distilled PRAMOD J. SADALAGE MARTIN FOWLER ,Addison Wesley (First Edition)

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Examination	07 Hours
Revision / Assignments / Discussions	03 Hours
Total	60 Hours

*Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5- 444 NETWORKS AND ADMINISTRATION

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-444 NETWORKS AND ADMINISTRATION	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	DATA COMMUNICATION AND NETWORK BASICS	10
II	NETWORK BASICS AND OSI MODEL	10
III	TCP/IP AND SECURITY SYSTEMS	10
IV	GRAPHICAL OPERATING SYSTEM	10
V	NETWORK ADMINISTRATION AND SECURITY	10
Total Instruction Hours		50

UNIT - I**DATA COMMUNICATION AND NETWORK BASICS****10 Hrs**

Data Communication: Introduction – data communication system – concepts – ASCII standard – units of measure – communication rate – analog and digital communication – parallel and serial communication – synchronous and asynchronous communication – protocols and buffers – detecting errors – simplex – half duplex – duplex communication – multiplexing – communication hardware , processing & channels: hardware devices – modem – other devices – communication processing – channels – wired transmission – telephone – leased line – switched line – coaxial cables – optical fiber – microwave – infrared – laser- radio – satellite

Networking Topologies : Network topologies – bus – ring – mesh – star – token ring – hybrid – types of networks – private – value added – local area – switched – internet – intranet – LAN – MAN – WAN

Network Infrastructure: Cables – cable types – coaxial – twisted pair – unshielded twisted pair - shielded twisted pair – fiber optic – switches – routers – repeaters – bridges – gateways

UNIT - II**NETWORK BASICS AND OSI MODEL****10 Hrs**

Signal Transmission: Base band – broad band

Network Basics: Network interface cards – protocols overview – identifying software components – protocol suites – OS and device drivers – network operating system – network clients – directory services

OSI Model: Introduction – OSI layers – physical – data link – network – transport – session presentation – application – operation of the OSI model

Servers: File servers – mail servers – print servers – application servers

Internet: Introduction – connecting to the internet – world wide web – web pages – search engines – web browsers – e-mail – URL – internet addressing – getting an account – internet accounts

UNIT - III**TCP/IP AND SECURITY SYSTEMS****10 Hrs**

TCP/IP: Introduction – accessing and using TCP/IP – configuring clients – TCP/IP suite utilities – remote access

Internet protocol: Introduction – IP addressing – characteristics of IP Address – Interior gateway protocols – subnetting and supernetting

Network Security: Introduction – types of threat – levels of security – physical – access control – personal identification – data encryption – diskless PC – protection against

cable radiation – call back security – firewalls and proxy servers – system fault tolerance – backing up data

UNIT - IV

GRAPHICAL OPERATING SYSTEM

10 Hrs

GUI OS Features: Introduction – GUI OS features – logging on – logging off – graphical desktop

Partitions: FAT vs FAT32 – FAT32 vs NTFS – NTFS – converting file system to NTFS – NTFS file compression – indexing service – partition wizard

Installation: System requirements – upgrading earlier versions – graphical installation from scratch – final setup wizard

New in GUI OS: Visual design – multiple user accounts – simplified file management – improved multimedia – built-in CD burning – speech and handwriting recognition – remote assistance – personal firewall

UNIT - V

NETWORK ADMINISTRATION AND SECURITY

10 Hrs

Network Installation: Client / server vs peer-to-peer – protocols – network components and connectors – installing NIC – installing cables – hub – setting up NIC – network setup wizard – working with network resources – sharing resources on network – new connection wizard

Multiple Users: User accounts and groups – working with user accounts – group membership profiles – working with groups – granting permissions – managing shares – switching between users.

Network Security: User account security - password protecting accounts – privacy settings – password recovery – password reset disk – internet connection fire wall – internet explorer security – protecting e-mail – trouble shooting network.

Back-up: Introduction – types of back-up – starting microsoft back-up – backing up – restoring.

Text Books:

1. Networking Essentials - Mark. A Sportack – Techmedia
2. Local Area Networks – S.K.Basandra, S. Jaiswal – Galgotia

Reference Books:

1. Windows XP Bible - Alan Simpson – IDG Books India Pvt. Ltd.,
2. Windows XP, Home Edition Complete – BPB Publications

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	60 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-445 DATA STRUCTURES USING C PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-445 DATA STRUCTURES USING C PRACTICAL	6 Hrs	90 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

LIST OF EXPERIMENTS

1. Write a program in 'C' to insert, delete an element from an array of elements. Also print the position of a particular element.
2. Implement array using row major order and column major order.
3. Write a program in 'C' to create a two dimensional array with at least ten elements. Search for particular element, print its position and address the element.
4. Write a program in 'C' to perform PUSH and POP operations in stack by using array.
5. Write a program in 'C' to display the reverse of a string using a stack.
6. Write a program in 'C' to evaluate a postfix expression.
7. Write a program in 'C' to create a queue containing ten elements and perform delete and insert operations using array.
8. Write a program in 'C' to implement recursive function.
9. Write a program in 'C' to create a singly linked list containing at least five elements. Make necessary assumptions.
10. Write a program in 'C' to delete the first node that contains an integer data item of a singly linked list.
11. Write a program in 'C' to create a binary tree.
12. Write a program in 'C' for pre-order traversal of a binary tree.
13. Write a program in 'C' for binary searching.
14. Write a program in 'C' to sort 'N' Numbers using Insertion sort.
15. Write a program in 'C' to sort 'N' Numbers using bubble sort.

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Programme Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	80 Hours
Revision / Repetition	10 Hours
Total	90 Hours

R5-446 VISUAL PROGRAMMING - I AND RDBMS PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-446 VISUAL PROGRAMMING - I AND RDBMS PRACTICAL	6 Hrs	90 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

LIST OF EXPERIMENTS

1. Write a program in C# to check whether a number is palindrome or not.
2. Write a program in C# to find the second largest element in a single dimensional array.
3. Write a program in C# to multiply to matrices using rectangular arrays.
4. Write a program to reverse a given string using C#.
5. Write a program in C# to demonstrate error handling using try, catch and finally blocks.
6. Design a simple calculator using switch statement in C#.
7. Demonstrate use of virtual and override keywords in C# with a simple program
8. Write a program to demonstrate abstract class and abstract methods in C#.
9. Write a program in C# to build a class which implements an interface which already exists.
10. Develop a database application using ADO.NET to insert, update and delete operations.
11. Create a table "Customer" with the following fields: Id, Company name, last name, first name, address, city, state, pin code and perform the following operations
 - ❖ Find the customer who does not have last name.
 - ❖ Change the pin code of any customer.
 - ❖ Insert new record into the table
 - ❖ Update the field's first name and last name into name.
 - ❖ Implement the following transaction control statements
 - a. Commit
 - b. Rollback
 - c. Save point
12. Create a table sales_order with s_order_no and product_no as primary key. Set other

- ❖ fields to store client number, delivery address, delivery date, order status.
 - ❖ Create an updatable view to modify and display the details of the sales_order table.
 - ❖ Grant select and update privileges on above table to other users.
 - ❖ Grant all the privileges to some other users. Revoke all the above granted permissions.
 - ❖ Add a new column for storing salesman number using ALTER command.
 - ❖ Set the s_order_no as foreign key as column constraint
 - ❖ Set the s_order_no as foreign key as table constraint
 - ❖ Enforce the integrity rules using CHECK.
13. Create a table 'master_book' to contain the information of magazine code, magazine name, publisher, Weekly/biweekly/monthly, price. Write PL/SQL block to perform insert, update, delete operations on the above table.
14. Write a PL/SQL block to create and handle any two user defined exception
15. Create a table 'stock' to contains the itemcode, itemname, current stock, date of last purchase. Write a stored procedure to seek for an item using itemcode and delete it, if the date of last purchase is before one year from the current date. If not, update the current stock.

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Programme Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	80 Hours
Revision / Repetition	10 Hours
Total	90 Hours

R5-447 LIFE AND EMPLOYABILITY SKILLS PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-447 LIFE AND EMPLOYABILITY SKILLS PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Sl. No.	Topics	Hours
1	Part – A: LISTENING ACTIVITY TOPICS: Global Warming, Pollution, Environment	12
2	Part – B: SPEAKING ACTIVITY TOPICS: Communication; Behavioural Skills; Productivity – Comparison with developed countries; Occupational Safety, Health Hazard; Accident & Safety, First-Aid;	28
3	Part – C: WRITING AND READING ACTIVITY TOPICS: Facing Interviews; Entrepreneurship and Project Preparation	08
4	Part – D: GOOGLE SEARCH AND PRESENTATION in Record note (for Continuous Assessment as Assignments on any five topics) TOPICS: Productivity; Quality Tools, Quality Circles, Quality Consciousness; Labour Welfare Legislation, Labour Welfare Acts; Gender Sensitisation (a. Important Constitutional & Legal Provisions for Women in India, b. Harassment of Women at Workplace (Prevention & Prohibition & Redressal) Act 2013, c. Guidelines & Norms laid down by Hon'ble Supreme Court in Vishaka and Others, d. National Commission for Protection of Child Rights (NCPDR), e. Protection of Children from Sexual Offences (POCSO) Act & Rule 6 of POCSO Rules, 2012.	12
TOTAL		60 Hrs

TOPICS AND ALLOCATION OF HOURS:

S.No	Section	Skills to be Acquired	Activity	No. of Hours
1	Part – A LISTENING ACTIVITY TOPICS: Global Warming, Pollution, Environment	<ul style="list-style-type: none"> • Deductive / Reasoning Skills • Cognitive Skills • Retention Skills 	<ul style="list-style-type: none"> • Taking down notes / hints • Answering questions • Fill in the blanks the exact words heard 	04 04 04
2	Part – B SPEAKING ACTIVITY TOPICS: Communication; Behavioural Skills; Productivity – Comparison with developed countries; Occupational Safety, Health Hazard; Accident & Safety, First-Aid;	<ul style="list-style-type: none"> • Personality/Psychological Skills • Pleasing & Amiable Skills • Assertive Skills • Expressive Skills • Fluency/Compatibility Skills • Leadership/Team Spirit Skills 	<ul style="list-style-type: none"> • Instant sentence making • Say expressions /phrases • Self introduction/ another higher official in company • Describe/explain products • Dialogues on technical grounds • Discuss & interact • Group Discussion 	02 02 04 06 06 08
3	Part – C READING AND WRITING ACTIVITY TOPICS: Facing Interviews; Entrepreneurship and Project Preparation	<ul style="list-style-type: none"> • Creative & Reasoning Skills • Creative & Composing Skills • Attitude & Aim Skills • Entrepreneurship Skills 	<ul style="list-style-type: none"> • Frame questions based on patterns • Make sentences based on patterns • Prepare a resume • Prepare an outline of a project to obtain loan from bank in becoming an entrepreneur 	02 02 02 02

4	<p>Part – D GOOGLE SEARCH AND PRESENTATION in Record note (for Continuous Assessment as Assignments on any five topics) TOPICS: Productivity; Quality Tools, Quality Circles, Quality consciousness; Labour Welfare Legislation, Labour Welfare Acts; Gender Sensitisation (a. Important Constitutional & Legal Provisions for Women in India, b. Harassment of Women at Workplace (Prevention & Prohibition & Redressal) Act 2013, c. Guidelines & Norms laid down by Hon'ble Supreme Court in Vishaka and Others, d. National Commission for Protection of Child Rights (NCPDR), e. Protection of Children from Sexual Offences Act & Rule 6 of POCSO Rules, 2012.</p>	<ul style="list-style-type: none"> • Cognitive Skills • Presentation Skills& • Interactive Skills 	<ul style="list-style-type: none"> • Search in the website • Prepare a presentation • Discuss & interact • Record as assignment 	12
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LEARNING STRUCTURE**100 Marks**

- Focus more on Speaking & Listening Skills
- Attention less on Reading & Writing Skills
- Apply the skills in fulfilling the Objectives on Focused Topics

a) Listening**25 Marks**

1. Deductive Reasoning Skills (taking down notes/hints)	10
2. Cognitive Skills (answering questions)	10
3. Retention Skills (filling in blanks with exact words heard)	05

b) Speaking Extempore / Prepared**30 Marks**

1. Personality/Psychological Skills (instant sentence making)	05
2. Pleasing & Amiable Skills (say in phrases/expressions)	05
3. Assertive Skills (introducing oneself/others)	05
4. Expressive Skills (describe/explain things)	05
5. Fluency/Compatibility Skills (dialogue)	05
6. Leadership/Team Spirit Skills (group discussion)	05

c) Writing & Reading**20 Marks**

1. Creative & Reasoning Skills (frame questions on patterns)	05
2. Creative & Composing Skills (make sentences on patterns)	05
3. Attitude & Aim Skills (prepare resume)	05
4. Entrepreneurship Skills (prepare outline of a project)	05

d) Continuous Assessment (Internal Marks)**25 Marks**

- (search, read, write down, speak, listen, interact & discuss)
1. Cognitive Skills (Google search on focused topics)

2. Presentation Skills & Interactive Skills (after listening, discuss)

Total Marks:

100 Marks

CONTINUOUS ASSESSMENT (INTERNAL MARKS)

I	LISTENING (3 exercises), SPEAKING (6 exercises) and READING & WRITING (4 exercises). All activities shall be recorded in the Record note. 13 exercises x 10 marks = 130 marks. Reduced to 10 marks	10 Marks
II	Present in the Record Note on any 5 topics prescribed in syllabus as Assignments Topics. 5 Assignments x 10 Marks = 50 marks. Average of 5 Assignments is 10 marks	10 Marks
III	Attendance	05 Marks
Total		25 Marks

MODEL QUESTION

Time: 3 Hours

Maximum Marks: 75

A. LISTENING

25 Marks

1. Listen to the content and take down notes/hints 10
2. Listen to the content and answer the following questions. 10
3. Listen to the content and fill in the blanks the exact words heard. 05

B. SPEAKING

30 Marks

1. Say in a sentence instantly on hearing the word (5 words, one after another). 05
2. Say any five expressions commonly used in communication. 05
3. Imagine, a consultant has come to your Dept. Introduce him to your subordinates. 05
4. Explain/describe the product you are about to launch in the market. 05
5. Speak with your immediate boss about the progress you have made. 05
6. Discuss within the group on the topic of focus prescribed in the syllabus. 05

C. WRITING & READING

20 Marks

1. Make sentences from the pattern given by changing sets of words with your own. 05

1.	When	do	you	return?
b.	How	is	his performance?	
c.	Where	has	the manager	gone?
d.	What	is	the progress	today?
e.	Why	are	the machines	not

2. Make sentences from the pattern given by changing sets of words with your own. 05

a	The workers	are	on strike		
b	The labourers	are paid	well	in this factory	
c	There	is	a rest room	for the workers	
d	These	are	the new products	launched	by our company
e	Almost everyone	came	to the company	on motorbikes	

3. Prepare a resume for the post of Department Manager. 05

4. Prepare an outline of a project to obtain a loan. (Provide headings and subheadings) 05

I. Guidelines for setting the question paper:

A. LISTENING:

Only Topics related to POLLUTION / ENVIRONMENT / GLOBAL WARMING are to be taken for listening section. The same after / Topic should not however be repeated in the above 3 Listening Activities.

B. SPEAKING:

1. WORDS of common usage
2. Fragments – expression of politeness, courtesy, cordiality
3. Introduce yourself as an engineer with designation or Introduce the official visiting your company/department
4. Describe/Explain the product/machine/department
5. Dialogue must be with someone in the place of work.
6. Group of six/eight Discuss the focused topic prescribed in the syllabus

C. WRITING & READING:

1. Provide five different structures.
Students are to substitute at least one set with some other word/words
2. Provide five different structures.
Students are to substitute at least one set with some other word/words
3. Provide some post related to industries.
4. Outline of the project (skeleton/structure) Only the various headings and subheadings
Content is not needed

II. Conduct of End Practical Examination with Allocation of time for each Part:**PART – C. WRITING & READING:**

Firstly, the students are seated after all the formalities are completed and they shall be asked to write on the answer paper the Written & Reading (Part - C) for half an hour.

DURATION: 30 Minutes + (15 extra minutes, while other student attends Speaking Part)

PART – A. LISTENING:

Secondly, after 30 minutes of the Start of the Examination, they may be asked to stop Writing and shall be directed to start the Listening (Part – A) of the End Examination on a separate sheet of paper. They shall also be given instructions that once the Listening Part is completed their papers shall be collected. The First of the Listening Topic decided by both external and internal Examiners shall be read to the students for three to five minutes. As they listen they can take down notes. They shall be given 10 minutes to restructure the notes, if necessary. Then, the Second Listening Topic (a different topic) shall be read to the students. They shall be asked to write the answers for the 5 questions given one after another within 10 minutes. Next, the Third topic (a new topic) is read to the students. Then they are dictated the sentences with 5 blanks, on which they shall fill in the exact word heard. This shall be completed in 10 minutes. Thus the LISTENING PART can be completed in 45 Minutes. The Listening part of the answer papers are collected from the students, immediately after.

DURATION: 45 Minutes

PART – B. SPEAKING

Thirdly, as the Speaking (Part – B) starts, the students are asked to resume the Written & Reading (Part – C) and complete within half an hour. The Examiners, both Internal and External shall take 14 (8+6) or 16 (8+8) students of their choice in the batch of 30 candidates. Initially, each Examiner on their part shall call each student one after another to answer to the first four questions (1 to 4), individually within a time span of 50 minutes. Once all the 4 questions are done, the Examiner shall divide them into groups of 6/8 students. Then the examiner can have the group discussion for 5 minutes followed by dialogue in pairs from the group for 3 minutes per pair (4 pairs x 3 minutes = 12 minutes) Then the examiner has the next group of students with whom the examiner conducts the group discussion followed by dialogues in pairs for the same duration. Thus each examiner can finish 16 students in 1 hour 30 minutes, the Part – B Speaking Part.

DURATION: 90 Minutes simultaneously by Each Examiner for 16 students of each set

NOTE: While awarding marks for this SPEAKING (Part – B), the following shall be observed for uniformity in evaluation.

Question 1:

Relevant expression of thought (1 mark for each sentence uttered)

Question 2:

Relevant expressions of Politeness / Courtesy / Etiquette / Mannerism / Request (NOT necessarily each of these but in general 5 Expressions uttered, award 1 mark each)

Questions 3, 4 and 5:

While evaluating each student, the student's Posture, Gestures, Dress code, Pronunciation (2 marks) and Relevance to the content (3 marks) shall be observed and then marks be awarded accordingly.

Question 6: GROUP DISCUSSION

NOTE: The Examiner shall choose a topic from the Question Bank provided in the Syllabus for the group of 6/8 students. The same topic shall not be repeated in any other group or batch.

While assessing and evaluating each of the students in the group, the following are to be observed. Each one's Participation, Confidence in expression, Reacting to the expressed views (assent/refute) amiably and amicably, Relevance to the topic of discussion, Lead and conclude the topic of discussion (1 mark each) may be assessed and marks be awarded accordingly. Thus, a Batch of 30 Students can be examined within 3 hours. Listening 45 minutes, Speaking 90 Minutes, Writing maximum 45 Minutes. (180 Minutes)

Assignment Topics:

III. Guidelines for recording the material on the focused topics in the Record note.

Write in the record note, **on any five topics**, from the list of topics given below. **10 Marks**
(5 topics x 10 marks = 50 marks. Thus, the Average of 5 topics is 10 Marks)

NOTE:

5 students can form a group and choose any 5 topics under the guidance of the English Faculty and Google search and then present them in the class for interaction. Finally they have to be written as Assignments in the Record Note.

Of the 5 topics chosen, 1 topic should compulsorily be taken from the 11th to the 15th topic given below (which are specially the TOPICS ON GENDER SENSITISATION) and the rest of the 4 topics shall be chosen from the 1st to 10th topic given below.

Topics for Assignments:

1. Productivity in Industries – Comparison with developed countries
2. Quality Tools, Quality Circles and Quality Consciousness
3. Effective Management
4. House Keeping in Industries
5. Occupational Safety and Hazard
6. Occupational Accident and First Aid
7. Labour Welfare Legislations
8. Labour Welfare Acts and Rights
9. Entrepreneurship
10. Marketing Analysis, Support and Procurement
11. Important Constitutional and Legal Provisions For Women in India
12. The Harassment of Women at Workplace (Prevention and Prohibition & Redressal) Act,2013
13. Guidelines and Norms laid down by the Hon'ble Supreme Court in Vishaka and Others
14. The National Commission for Protection of Child Rights (NCPCR)
15. The Protection of Children from Sexual Offences (POCSO) Act & Rule of POCSO Rules,2012

LIFE AND EMPLOYABILITY SKILLS: QUESTION BANK

A. LISTENING

25 Marks

1.	Listen to the content and take down notes/hints.	10 Marks
2.	Listen to the content and answer the following questions.	10 Marks

3.	Listen to the content and fill in the blanks with the exact words heard.	5 Marks
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NOTE: Only Topics related to pollution/environment/global warming are to be taken for listening section. The same Matter/Topic should not however be repeated in the above 3 Listening Activities.

B. SPEAKING

30 Marks

1. Say in a sentence instantly on hearing the word (5 words must be given one after another) 5 Marks

NOTE: The examiners at the time of Practical Exam may provide Words which are commonly used in day to day life.

2. Say any 5 expressions commonly used in communication. 5 Marks

NOTE: Students are supposed to say 5 expressions reflecting Politeness / Courtesy / Etiquette / Mannerism / Request

3. Introducing Oneself/Others in Organisation. 5 Marks

QUESTIONS:

- Introduce yourself as a prospective candidate for the company while facing the interview.
- Imagine the General Manager from the Head Office of your company has come to inspect your factory. Introduce him.
- Imagine a Consultant has come to your department. Introduce him to your subordinates.
- New Factory Manager has been appointed. Introduce him to all the employees of your firm.
- Introduce yourself after joining the department/factory/company.
- Assume that the Inspector of Factories has come to check the quality of products and the safety standards adopted as per Govt. Norms and Regulations. Introduce him to the staff of all departments for their co- operation, in this regard.
- A Marketing Company Representative visits your factory to buy your product. Introduce him to your Supervisors.

4. Explain/Describe the Product/Machine/Department. 5 Marks

QUESTIONS:

- Explain/Describe the product, you are about to launch in the market.
- Describe the newly installed modern machine in your company which is purchased for the purpose of increasing the production.
- Explain the functioning and the efficiency of the machine that you have manufactured in your company.
- Illustrate the launch of new model car and its capabilities.
- Describe your department

5. Dialogue at the Place of Work. 5 Marks

QUESTIONS:

- As the Department Head, call the Supervisor and talk to him about the installation of the new machines in your factory.
- Talk to your colleague working in the factory about the safety standards to be implemented in your factory after the visit of Inspector of Factories.
- Speak to your colleague about the training you had at the Head Quarters and the outcome of the training in handling the latest machine installed in your factory.
- Call the Subordinate who is irregular and careless in his work. Advise him.
- Speak to your Higher Officer about the steps taken to stop the strike proposed by the workers of your factory.
- Speak with your immediate boss about the progress you have made.

6. Group Discussion 5 Marks

NOTE: Depending on the strength of the students in a Batch, they may be divided into groups of six/eight and be asked to discuss on anyone of the following topics given below.

QUESTIONS:

Discuss within the group on any one of the topics given below.

1. Productivity in Industries – comparison with developed countries
2. Quality Tools, Quality Circles and Quality Consciousness
3. Effective Management
4. House Keeping in Industries
5. Occupational Safety and Hazard
6. Occupational Accident and First- Aid
7. Labour Welfare Legislation
8. Labour Welfare Acts and Rights
9. Entrepreneurship
10. Marketing Analysis, Support and Procurement
11. Global Warming
12. Environment
13. Pollution
14. Importance of Communication in English
15. Constitutional and Legal Provisions for Women in India
16. Harassment of Women at Workplace (Prevention and Prohibition, And Redressal) Act,2013
17. Guidelines & Norms laid down by Honourable Supreme Court in Vishaka and Others
18. National Commission for Protection of Child Rights (NCPCR)
19. Protection of Children from Sexual Offences Act & Rule 6 of POCSO Rules, 2012

C. WRITING & READING

20 Marks

1. Frame new questions from the pattern given by changing sets of words with your own.

5 Marks

QUESTION:

When	do	you	return?
How	is	his performance?	
Where	has	the manager	gone?
What	is	the progress	today?
Why	are	the machines	not functioning?

Model answers. (Change of one set is sufficient in each of the sentences)

1. When do you come?
2. Where is his performance?
3. Where has the supervisor gone?
4. How is the progress today?
5. Why are the machines not working?

What	are	the methods	adopted?
When	is	the manager	coming?
Why	will	he	give?
Where	has	the product	gone?
How	do	you	perform?

Why	do	you	go?
Which	has	he	completed?
What	will be	the outcome?	
How	does	this	work?

Where	is	the progress?	
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What	would be	the result?	
Whose product	has come out	recently?	
When	shall	the new product	be launched?
How	can we	overcome	this problem?
Who	is	the manager	in this factory?

On Whom	would you	put	the blame?
Who	shall be	responsible	for this?
What	do you	want to	convey?
When	can we	see	performance?
How	will you	solve	this problem?

When	do	they	award	the winners?
Why	don't	you	realise	your weakness?
Who	will make	him	responsible?	
What	do	you	want	coffee or tea?
Where	can	we	meet	him?

2. Make sentences from the pattern given by changing sets of words with your own. 5 Marks

QUESTION:

The workers	are	on strike.	
The labourers	are paid	well	in this factory.
There	is	a rest room	for the workers.
These	are	the new products	launched.
Almost everyone	came	to the company	on motorbikes.

Model answers. (Change of one set is sufficient in each of the sentences)

1. The engineers are on strike.
2. The labourers are paid less in this factory.
3. There is a rest room for the women staff.
4. These are the new products introduced.
5. No one came to the company on motorbikes.

We	work	for the society.	
They	introduce	new techniques	for efficiency.
Wearing	helmets	is	compulsory.
Our company	announces	bonus	for the employees.
Labour laws	are followed	strictly	in our company

The Supervisor	enquired		the workers.
The industry	is shut		for May Day.
New methods	are introduced		in the company.
Gopi	works		in the first shift.
We	manufacture		bolts & nuts.

The workers	are	the assets	of this factory.
The welfare	of the employees	is looked after.	
Safety	is	the first priority	for any company.
Labour welfare laws	are	strictly	followed.

I	take	pride	to work here.
He	was promoted	as G.M	yesterday.
My life	has been	wonderful	here.
These	will be	my targets.	
They	are	in the canteen	now.
We	have	a bike stand	near the gate.
The doctor	is	on duty.	
Edison	was	a great scientist.	
There	were	many trees	in our village.
Our teachers	give	us	useful guidance.
Most children	go	to school	by vans.

3. Prepare a resume. 5 Marks

QUESTIONS:

- Prepare a resume for the post of Department Manager.
- Write a resume for the post of Programme Trainee in a software firm.
- Prepare a resume for the post of Site Supervisor in a Tower Erection company.
- Prepare a resume for the post of Senior Sales Manager, in an organisation.
- Write a resume for the post of Site Engineer in a company.
- Prepare a resume for the post of Lecturer in a Polytechnic College.

4. Prepare an outline of a Project. 5 Marks

QUESTIONS:

- Prepare an outline of a Project to obtain a loan. (Provide only headings and subheadings)
- Prepare an outline of a Project to start a factory with your own funds. (Provide only headings and subheadings)
- Prepare an outline of a Project to start a Retail Selling Showroom with your friends as partners. (Provide headings and subheadings only)
- Prepare an outline of a Project so as to start a factory on Job-work Basis from the order you can get from a big company. (Provide only headings and subheadings)

LIFE AND EMPLOYABILITY SKILLS PRACTICAL

Time: 3 Hours

Maximum Marks: 75

Name:

Date:

Register Number:

Time:

A. LISTENING (25 Marks)	
1. Listen to the content and take down notes/hints	10
2. Listen to the content and answer the following questions.	10
3. Listen to the content and fill in the blanks the exact words heard.	05
B. SPEAKING (30 Marks)	
1. Say in a sentence instantly on hearing the word (5 words, one after another).	05
2. Say any five expressions commonly used in communication.	05
3. Imagine, a consultant has come to your department. Introduce him to your subordinates.	05
4. Explain/describe the product you are about to launch in the market.	05
5. Speak with your immediate boss about the progress you have made.	05
6. Discuss within the group on the topic of focus prescribed in the syllabus.	05

C. WRITING & READING (20 Marks)

1. Frame new questions from the pattern given by changing sets of words with your own.

05

a.	When	do	you	return?
b.	How	is	his performance?	
c.	Where	has	the manager	gone?
d.	What	is	the progress	today?
e.	Why	are	the machines	not functioning?

2. Make sentences from the pattern given by changing sets of words with your own. 05

a.	The workers	are	on strike.		
b.	The labourers	are	well	in this factory.	
c.	There	is	a rest room	for the workers.	
d.	These	are	the new	launched	by our company.
e.	Almost	came	to the company	on motorbikes.	

3. Prepare a resume for the post of Department Manager. 05

4. Prepare an outline of a project to obtain a loan. (Provide headings and subheadings) 05

Signature of the Candidate

DETAILED ALLOCATION OF MARKS: (75 MARKS)

ACTIVITY	MARKS						TOTAL MARKS
	A.1 (10)		A.2 (10)		A.3		
PART – A LISTENING							
PART – B SPEAKING	B.1 (05)	B.2 (05)	B.3	B.4	B.5	B.6	
PART – C WRITING & READING	C.1 (05)		C.2 (05)		C.4 (05)		
GRAND TOTAL							

Signature of the Internal Examiner

Signature of the External Examiner

Theory & writing exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

**FIFTH SEMESTER
R5-541 JAVA PROGRAMMING**

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-541 JAVA PROGRAMMING	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION TO JAVA, OPERATORS, CONTROL STRUCTURES	13

II	CLASSES & OBJECTS, ARRAYS, STRINGS, PACKAGES	13
III	INHERITANCE, INTERFACE, APPLETS	13
IV	EVENT, EXCEPTION HANDLING, MULTITHREADING	13
V	SWINGS, LAYOUT MANAGER, JAVA DATABASE CONNECTIVITY	13
Total Instruction Hours		65

UNIT - I**INTRODUCTION TO JAVA, OPERATORS, CONTROL STRUCTURES****13 Hrs**

Introduction to Java: History – characteristics of java program – java and world wide web – types of java program – java environment – JDK & JSL – creating and executing a java program – java tokens: keywords, character set, identifiers, literals, constants, operator, separator – Java Virtual Machine (JVM) – command line arguments – comments in java program

Operators: Arithmetic – relational – logical – bitwise – increment and decrement – short hand assignment – conditional – special instance operators – dot operator

Constants: Numeric-character – string

Control Structures: Decision making and branching: simple if statement – if-else statement – nesting if-else – if ladder – switch statement – looping: while loop – do while loop – for loop – break – labeled loop – continue statement

UNIT - II**CLASSES & OBJECTS, ARRAYS, STRINGS, PACKAGES****13 Hrs**

Class and objects: Defining a class – methods – creating objects – accessing class members – constructors – method overloading – static members – nesting of methods – this keyword

Variables: Declaration of variables – initializing variables – scope of variables – data types – type conversions in expressions

Arrays: One dimensional array – creating an array – array processing – multidimensional array – vectors – vector class and methods – math class – visibility control: public access, protected access – friendly access – private – private protected

Packages: Java API packages – system packages – naming conventions – creating & accessing a package – adding class to a package – hiding classes

Strings: String array – string methods – string buffer class & methods

UNIT - III**INHERITANCE, INTERFACE, APPLETS****13 Hrs**

Inheritance: Single inheritance – multiple inheritance – multilevel inheritance – hierarchical inheritance defining a subclass – deriving a sub class – overriding methods – final variables and methods – final classes – final methods – abstract methods and classes

Interfaces: Defining interface – extending interface – implementing interface – accessing interface variables

Applets: Introduction – applet life cycle – creating & executing an applet – applet tags in html – parameter tag – color control – font control – graphics class: drawing and filling lines – rectangles – polygon – circle – arc

UNIT - IV
EVENT, EXCEPTION HANDLING, MULTITHREADING

13 Hrs

Event: Event generator – event listener – key events – mouse events

Exception Handling: Limitations of error handling – advantages of exception handling – types of errors – basics of exception handling – tryblocks – throwing an exception – catching an exception – finally statement

Multithreading: Creating threads – life of a thread – defining & running thread – thread methods – thread priority – synchronization – thread scheduling – implementing runnable interface

UNIT - V
SWINGS, LAYOUT MANAGER, JAVA DATABASE CONNECTIVITY

13 Hrs

Swings: Creating a desktop application using swing – implementing the JFrame Class – JButton Class – JLabel – JTextField – JTextArea – JTable – JCheckBox – JRadioButton Class – listing menus with frames

Implementing the Layout Manager: Flow layout manager – border layout – grid layout – grid bag layout manager – socket – types of socket

Java Database Connectivity: JDBC – ODBC – types of JDBC drivers – seven steps to JDBC – importing javasql packages – loading and registering the driver – establishing connection – creating a statement – executing the statement – retrieving the result – closing the connection and statement

Text books:

1. Programming with JAVA - E. Balagurusamy – TataMc-Graw Hill, New Delhi – 5th Edition
2. Java hand book – Paterick Noughtron- TMH

Reference books:

1. Java, A Beginner's Guide - Herbert Schildt - Oracle Press - 6th Edition
2. Java for you - Koparkar, TMH
3. Java Programming Language - Ken Arnold, James Gosling - Addison Wesley
4. Introducing to OOPS with Java - C Thomas WU – 4th Edition – TMH

Instruction Hours	65 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	75 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-542 VISUAL PROGRAMMING - II

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-542 VISUAL PROGRAMMING - II	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION TO .NET FRAMEWORK	13
II	INTRODUCTION TO VISUAL BASIC .NET	13
III	APPLICATION DEVELOPMENT USING ADO .NET	13
IV	INTRODUCING ASP.NET	13
V	XML	13
Total Instruction Hours		65

UNIT - I**INTRODUCTION TO .NET FRAMEWORK****13 Hrs**

Introduction to .NET framework – managed code and the CLR – intermediate language, metadata and JIT compilation – automation memory management

Language concepts and the CLR: Visual studio .NET – using the .NET framework – exploring the Visual Studio integrated development environment – the framework class library – .NET objects – ASP.NET – .NET web services – windows forms

UNIT - II**INTRODUCTION TO VISUAL BASIC .NET****13 Hrs**

Elements: Variables and constants – data types – declaration – operators – types – precedence – expressions – program flow – decision statements – if .. then, if..then..else, select..case – loop statements – while..end..while, do..loop, for..next, for..each..next. types: value data types – structures, enumerations – reference data types – single dimensional – multi-dimensional arrays – jagged arrays – dynamic arrays – windows programming – creating windows forms – working with toolbox controls – button, check box, combo box, label, list box, radio button, text box. events – click, close, deactivate, load, mousemove, mousedown, mouseup. menus and dialog boxes – creating menus – menu items – context menu – using dialog boxes – show dialog () method

UNIT - III**APPLICATION DEVELOPMENT USING ADO .NET****13 Hrs**

Features of ADO.NET: Architecture of ADO.NET – ADO.NET providers – connection – command – data adapter – dataset

Accessing data with ADO.NET: Connecting to data source, accessing data with data set and data reader – create an ADO.NET application – using stored procedures

UNIT - IV**INTRODUCING ASP.NET****13 Hrs**

ASP.NET Features: Change the home directory in IIS – add a virtual directory in IIS – Set a default document for IIS – change log file properties for IIS – Stop, Start, or Pause a web Site – Global.asax file

Creating Web Controls: Web controls – HTML controls, using intrinsic controls, using input validation controls, selecting controls for applications – adding web controls to a page.

Creating web forms: Server controls – types of server controls – adding ASP.NET code to a page.

UNIT - V

XML

13 Hrs

Introduction: Advantages – HTML Vs XML – browsing and parsing XML – creating a XML file – data island – well formed XML document

XML components: Elements – entities – comments – processing instructions – attributes DTD: declarations in DTD: element, attribute, entity and notation – construction of an XML document – XML namespaces – declaring namespaces – default name spaces.

XML schema: Need and use of schema – building blocks – simple elements – defining attributes – complex elements

XML with .NET: XML serialization in the .NET framework – SOAP fundamentals – using SOAP with the .NET framework.

Text books:

1. Introduction to Visual basic.NET NIIT Prentice Hall of India 2005
2. Applications of .NET Technology ISRD Group TMGH Education Pvt Ltd., New Delhi 2011

Reference books:

- 1.Introducing Microsoft .NET - David S. Platt -Microsoft Press, Saarc Edition, 20012
- 2.Introduction to Microsoft® ASP.NET Work Book - Microsoft -Microsoft Press
- 3.Developing XML Web Services Using Microsoft® ASP.NET – Microsoft - Microsoft Press, 2009
- 4.Designing Microsoft ASP.NET Applications - Douglas J. Reilly - Microsoft Press, First Edition5.
- 5.ASP.NET - Danny Ryan and Tommy Ryan - Hungry Minds Maran Graphics
- 6.VB.NET Dinesh Maidasani Firewall Media,New Delhi 2008

Instruction Hours	65 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	75 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-543 SOFTWARE ENGINEERING

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-543 SOFTWARE ENGINEERING	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION TO SOFTWARE ENGINEERING	10
II	SOFTWARE DESIGN AND PLANNING	10
III	SOFTWARE MAINTENANCE AND RISK MANAGEMENT	10
IV	SOFTWARE TESTING	10

V	SOFTWARE RELIABILITY AND QUALITY ASSURANCE	10
Total Instruction Hours		50

UNIT - I**INTRODUCTION TO SOFTWARE ENGINEERING****10 Hrs**

Basics of Software Engineering: Need for software engineering – definition – software characteristics – software myths – program versus software products

Software Development Life Cycle Models: Introduction – waterfall model – prototyping model – spiral model – iterative enhancement model – RAD model – object oriented model – advantages and disadvantages of above models – comparison of various models

Software Requirement Analysis (SRS): Value of good SRS – requirement process – requirement specification – desirable characteristics of an SRS – components of an SRS – structures of a requirement documents – problems in SRS – requirements gathering tools – analysis tools – data flow diagram – data dictionary – ER diagram

UNIT - II**SOFTWARE DESIGN AND PLANNING****10 Hrs**

Software Design: Definition of software design – objectives of software design – process of software design – architectural design – modular design – structure chart – coupling and cohesion – different types – interface design – design of human computer interface

Coding: Information hiding – programming style – internal documentation – monitoring and control for coding – structured programming

Software Planning: Software metrics – definition – types of metrics – product and project metrics – function point and feature point metrics – software project estimation – steps for estimation – reason for poor and inaccurate estimation – project estimation guidelines – models for estimation – COCOMO model – automated tools for estimation

CASE: CASE and its scope – architecture of CASE environment – building blocks for CASE – CASE support in software life cycle – objectives of CASE – characteristics of CASE tools – list of CASE tools – categories – advantages and advantages of CASE tools.

UNIT - III**SOFTWARE MAINTENANCE AND RISK MANAGEMENT****10 Hrs**

Software Maintenance: Software as an evolution entity – software configuration management activities – change control process – software version control – software configuration management – need for maintenance – categories of maintenance – maintenance cost – factors affecting the effort – modelling maintenance effort

Risk Management: Definition of risk – basics for different types of software risks – monitoring of risks – risk management – risk avoidance – risk detection – risk control – risk recovery – sources of risks – types of risks

Project Scheduling: Introduction – factors affecting the task set for the project – scheduling methods – work breakdown structure – flow graph – Gantt chart – PERT

UNIT - IV**SOFTWARE TESTING****10 Hrs**

Software Testing: Introduction to testing – testing principles – testing objectives – test oracles – basic terms used in testing – fault – error – failure – test cases – black box and

white box testing – advantages and disadvantages of above testing – methods for block box testing strategies – methods for white box testing strategies – testing activities – test plan

Levels of testing: Unit testing – integration tests – system testing – types

Software Testing Strategies: Static testing strategies – formal technical reviews – code walk through – code inspection – debugging – definition – characteristics of bugs – life cycle of a debugging task – debugging approaches

Software Testing Tools: Need for tools – classification of tools – functional / regression testing tools – performance / load testing tools – testing process management tools – benefits of tools – risk associated with tools – selecting tools – introducing the tool in the testing process – different categories of tools – examples for commercial software testing tool

Code of Ethics for Software Professionals: Human ethics – professional ethics – ethical issues in software engineering – code of ethics and professional practice – software engineering code of ethics and professional practice – ethical issues – right versus wrong

UNIT - V

SOFTWARE RELIABILITY AND QUALITY ASSURANCE

10 Hrs

Software Quality Assurance: Verification and validation – SQA – objectives and goals – SQA plan – definition of software quality – classification of software qualities – software quality attributes – important qualities of software products – importance of software quality – SEI – CMM – five levels

ISO 9000: Need for ISO Certification – benefits of ISO 9000 certification – limitation of ISO 9000 certification – uses of ISO – salient features of ISO 9000 requirements – introduction to ISO 9126

Software Reliability: Definition – reliability terminologies – classification of failures – reliability metrics – reliability growth modeling – reliability measurement process

Reverse Software Engineering: Definition – purpose – reverse engineering process – reverse engineering tasks – characteristics and application areas of reverse engineering – software re-engineering – principle – re-engineering process – difference between forward engineering and re-engineering

Text books:

1. Software Engineering Theory and Practice, Shari Lawrence P fleeger Joanne M.Atlee, Fourth Edition, Pearson 2011
2. Software Engineering A Practitioner's Approach, Sixth Edition, Roger S Pressman, Tata McGraw-Hill

References:

1. Fundamental of Software Engineering, Rajib Mall, PHI.
2. Software Engineering fundamentals, Ali Behforooz and Fredick J, Hudson Oxford University press, 2005
3. Software Testing Principles and Practices, Srinivasan desikan, Gopalswamy Ramesh Pearson First Ed.
4. Software Testing Concepts and Tools, Nageshwara Rao Pusulri, DreamTeach, First Edition
5. Software Engineering, Principles and Practices, Rohit Khurana ITL ESL, Vikas Publishing House Pvt Ltd
6. Software Engineering, Ninth Edition, Ian Sommerville, Pearson

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	60 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

ELECTIVE THEORY – I

R5-544.1 MULTIMEDIA SYSTEMS

SUBJECT	INSTRUCTIONS		EXAMINATION			
R5-544.1 MULTIMEDIA SYSTEMS	Hours / Week	Hours / Sem	Marks			Duration
	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	3 Hrs

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION TO MULTIMEDIA	10
II	DEFINING OBJECTS FOR MULTIMEDIA SYSTEMS	10
III	MULTIMEDIA DATA AND STANDARDS	10
IV	MULTIMEDIA DEVICES AND MAKING MULTIMEDIA	10
V	MULTIMEDIA DESIGN, MULTIMEDIA FOR INTERNET	10
Total Instruction Hours		50

UNIT - I

INTRODUCTION TO MULTIMEDIA

10 Hrs

Introduction: Definition of multimedia – multimedia basics – where to use multimedia – multimedia elements – multimedia applications – virtual reality – delivering multimedia

Multimedia Systems Architecture: Multimedia workstation architecture – high resolution graphic displays – multimedia architecture based on interface bus – network architecture for multimedia systems

Evolving Technologies for Multimedia Systems: Hypermedia documents – hypertext – hyper speech – HDTV and UDTV – 3D technologies and Holography

Defining Objects for Multimedia System: Text – images – audio and voice – full-motion and live video – multimedia data interface standards – file formats for multimedia systems – video processing standards.

Multimedia Software: Overview of multimedia software tools – open source replacements – multimedia authoring – some useful editing and authoring tools – VRML – Open GL – windows and open source API

UNIT - II

DEFINING OBJECTS FOR MULTIMEDIA SYSTEMS

10 Hrs

Text: About fonts and faces – using text in multimedia – hypermedia and hypertext – using hypertext – hypermedia structures – hypertext tools

Images: Making still images – bitmaps – 1 bit images – 8-bit gray level images – 8-bit color images – dithering – 24 bit color images – vector drawing – vector – 3-d drawing and rendering – color – understanding natural light and color – computerized color – color palettes – color look-up table – image processing – image acquisition, image enhancement, color images processing

Sound: The power of sound – digital audio – making digital audio files – MIDI audio – MIDI vs digital audio – multimedia system sounds – adding sound to your multimedia

project – audio recording – keeping track of your sounds – audio CDs – sound for your mobile – sound for the internet

Animation: The power of motion – principles of animation – animation by computer – animation techniques – animation using open GL

Video: Using video – how video works and is displayed – analog video – digital video, displays – digital video containers – codec – video format converters – obtaining video clips – shooting and editing video.

UNIT - III

MULTIMEDIA DATA AND STANDARDS

10 Hrs

Data Compression: Need for data compression – general data compression scheme – compression standards – non-lossy compression for images – lossy compression for photographs and video – hardware vs software compression.

Compression Schemes and standards: (concepts only) Binary image compression – color – gray scale and still – video image compression – JPEG – video image compression – multimedia standards for video – requirements for full-motion video compression – MPEG – audio compression – fractal compression – advantages / disadvantages

Data and File Format Standards: Popular file formats – RTF, RIFF, GIF, PNG, TIFF, MIDI, JPEG, JFIF, AVI, WAV, BMP, WMF, MIX, MPEG standards - TWAIN

Multimedia Databases: Storage and retrieval – database management systems – database organization and transaction management for multimedia systems

Multimedia Information sharing and retrieval: Social media sharing user – generated media consent sharing – media propagation in online social network – content based retrieval in digital libraries

UNIT - IV

MULTIMEDIA DEVICES AND MAKING MULTIMEDIA

10 Hrs

Multimedia input/output Technologies: Limitations of traditional input devices – multimedia input output devices – PEN input – working of electronic pen – video and image display systems – video display technology standards – CRT – display terminology – flat panel display system

Print Output, image, audio and video Technologies: Comparison of printing technologies – laser printing – dye sublimation printer – color printing technology issues – image scanners – types – digital voice and audio – voice recognition systems – digital camera – video frame grabber – video and still image processing – video camera – full-motion video controllers – video capture board

Making Multimedia: Stages of a multimedia project – creativity – organization, communication – hardware – software – text editing and word processing tools – OCR software – painting and drawing tools – 3-D modeling and animation tools – image-editing tools – sound-editing tools – animation, video, and digital movie tools, authoring systems – making instant multimedia – types of authoring tools

Multimedia Skills: The team – project manager – multimedia designer – interface designer – writer – video specialist – audio specialist – multimedia programmer – producer of multimedia for the web

UNIT - V

MULTIMEDIA DESIGN, MULTIMEDIA FOR INTERNET

10 Hrs

Designing and Producing: Designing – designing the structure – designing the user interface – producing – tracking – copyrights – virtual reality designing and modeling

The Internet and Multimedia: The bandwidth bottleneck – internet services – mime types – multimedia on the web – web page makers and site builders – plug-ins and delivery vehicles

Designing for the world wide web: Developing for the web – the desktop workspace and the small-device workspace – text for the web – images for the web – clickable buttons – client-side image maps – sound for the web – animation for the web –video for the web – plug-ins and players

Multimedia Communication and applications – Study of multimedia networking – quality of data transmission – media on demand – multimedia over wireless and mobile networks – media entertainment – web-based applications – e-learning and education – cloud computing for multimedia services – cloud – assisted media sharing

Text books:

1. Fundamental of Multimedia, Ze-NiaLi and M.S.Drew. Pearson Education, Second Edition 2014.
2. Multimedia: Making It Work, Tay Vaughan, Tata-McgrawHill, Eighth Edition
3. Multimedia systems Design, Prabhat K. Andleigh, Kiran Thakra, PHI

Reference books:

1. Computer Graphics Multimedia and Animation, Malay K.Pakhira, PHI, Second edition
2. Principles of Multimedia, Ranjan Parekh, TMGH, New Delhi
3. Multimedia Systems, John F. Koegel Buford, Pearson Education
4. Multimedia Computing, Communication and Applications, Ralf Steinmetz and Klara Nahrstedt, Pearson.

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	60 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

ELECTIVE THEORY – I R5-544.2 CLOUD COMPUTING

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-544.2 CLOUD COMPUTING	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	CLOUD COMPUTING BASICS	10
II	CLOUD COMPUTING ARCHITECTURE & SERVICES	10
III	VIRTUALIZATION	10
IV	STORAGE MANAGEMENT	10
V	SECURITY IN THE CLOUD	10

Total Instruction Hours	50
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UNIT - I
CLOUD COMPUTING BASICS **10 Hrs**

Cloud computing overview – origins of cloud computing – cloud components – essential characteristics – on-demand self-service, broad network access, location independent resource pooling, rapid elasticity, measured service – architectural influences – high-performance computing, utility and enterprise grid computing, autonomic computing, service consolidation, horizontal scaling web services, high scalability architecture – cloud scenarios – benefits – scalability, simplicity, vendors, security limitations – sensitive information, application development – security concerns – privacy concern with a third party, security level of third party security benefits – regularity issues – Government policies

UNIT - II
CLOUD COMPUTING ARCHITECTURE & SERVICES **10 Hrs**

Cloud architecture: Cloud delivery model – SPI frame work, SPI evolution, SPI vs traditional IT model

Software as a Service (SaaS): SaaS service providers – web services – web 2.0 – web operating system – Google app engine, salesforce.com and Google platform – benefits – operational benefits, economic benefits – evaluating SaaS

Platform as a Service (PaaS): Cloud platform & management – computation & storage - PaaS service providers – right scale – salesforce.com – rackspace – force.com – services and benefits

Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2 , GoGrid – Microsoft soft implementation and support – Amazon EC service – level agreement – recent developments – benefits

Cloud deployment model: Public clouds – private clouds – community clouds – hybrid clouds – advantages of cloud computing

UNIT - III
VIRTUALIZATION **10 Hrs**

Virtualization: Virtualization and cloud computing – need of virtualization – cost, administration, fast deployment, reduce infrastructure cost – limitations

Types of Hardware Virtualization: Full virtualization – partial virtualization – para virtualization desktop virtualization – software virtualization – memory virtualization – storage virtualization – data virtualization – network virtualization – Microsoft implementation – Microsoft Hyper V – VMware features and infrastructure – virtual box - thin client

UNIT - IV
STORAGE MANAGEMENT **10 Hrs**

Storage Network: Architecture of storage, analysis and planning.

Storage network design considerations: NAS and FC SANs – hybrid storage networking technologies (ISCSI, FCIP, FCoE) – design for storage virtualization in cloud computing – file systems or object storage .

UNIT - V
SECURITY IN THE CLOUD **10 Hrs**

Cloud Security – securing the cloud understanding – Security service boundary: CSA cloud reference model – securing data – brokered cloud storage access – storage location and tenancy – encryption – cloud computing security challenges – security policy implementation – policy types – virtualization security management – virtual threats

Text books:

1. Cloud Security: A Comprehensive Ronald L. Krutz Wiley Publishing, Inc
2. Guide to Secure Cloud Computing Russell Dean Vines

Reference books:

1. Cloud Computing A practical Approach 2008 Edition Tata McGrawHill
2. Cloud Computing Bible Barrie Sosinsky Wiley Publishing, Inc.

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	60 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

ELECTIVE THEORY – I R5-544.3 MOBILE COMPUTING

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-544.3 MOBILE COMPUTING	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION TO MOBILE COMPUTING , WIFI AND BLUETOOTH	10
II	INTRODUCTION TO GSM , SMS ,GPRS AND MOBILE OS	10
III	INTRODUCTION TO ANDROID	10
IV	VIEWS	10
V	LOCATION BASED SERVICE AND SQLITE	10
Total Instruction Hours		50

UNIT - I**INTRODUCTION TO MOBILE COMPUTING, WIFI AND BLUETOOTH****10 Hrs**

Introduction: Evolution of mobile computing – important terminologies – mobile computing functions – mobile computing devices – networks: wired, wireless, adhoc – comparison of wired and wireless mechanism – various types of wireless communication

technologies used in mobiles

Antennas Architecture: Architecture of mobile computing – 3-tier architecture – presentation (tier-1), application (tier-2), data (tier-3) – mobile computing through telephony – evolution through telephony

Wireless LAN: Introduction – applications of WLAN – Infrared versus Radio transmission – features of WI-FI and WI-MAX – Bluetooth introduction and application

UNIT - II

INTRODUCTION TO GSM, SMS, GPRS AND MOBILE OS

10 Hrs

Global System for Mobile Communication (GSM): Introduction – GSM architecture – GSM entities (basics only) – introduction to CDMA

Short Message Service (SMS): Mobile computing over SMS – short message service – strength of SMS – SMS architecture – value added services through SMS – VAS examples

General Packet Radio Service (GPRS): Introduction – GPRS packet data network – applications for GPRS – generic applications, GPRS specific applications – limitations of GPRS – features of 3G and 4G data service

Mobile Operating Systems: Evaluation of mobile operating system – handset manufactures and their Mobile OS – Mobile OS and their features – Linux Kernel based Mobile OS

UNIT - III

INTRODUCTION TO ANDROID

10 Hrs

Android: Android versions – features of android – architecture of android – android market – android runtime (Dalvik Virtual Machine)

Android SDK & ADT: Android SDK – Android Development Tool (ADT) – installing and configuring Android – Android Virtual Device (AVD)

Activities & Intents: Understanding activities – linking activities and intents – calling built-in applications using intents – fragments displaying notifications

User Interface: views and view groups – layouts – display orientation – action bar – listening for UI notifications

UNIT - IV

VIEWS

10 Hrs

Basic Views: Textview, Button, Image Button, EditText, CheckBox, ToggleButton, RadioButton and RadioGroup Views, Progress Bar View, Auto Complete Text View

Advanced Views: Time picker view and date picker view – list views – image view – menus – analog and digital view – dialog boxes

Displaying Pictures & Menus with Views: Image view – gallery view – Image Switcher – GridView - creating the helper methods – options menu – context menu

Phone: Sending SMS – receiving SMS – making phone call

UNIT - V

LOCATION BASED SERVICE AND SQLITE

10 Hrs

Location Based Services: Obtaining the maps API key- displaying the map – zoom control – navigating to a specific location – adding marker – Geo coding and reverse Geo coding

Content Provider: Sharing data – view contacts – add contacts – modify contacts – delete contacts

Storage: Store and retrieve data's in internal and external storage – SQLite – creating and using databases

Android Service: Consuming web service using HTTP, downloading binary data – downloading text content – accessing web service

Text books:

1. Beginning Android 4 Application Development, Wei-Meng Lee, Wiley India Edition
2. Android Apps for Absolute Beginners, Jackson, Apress

Reference books:

1. Mobile Computing, Computing Asoke K Talukder, Hasan Ahmed, Roopa R, Yavagal, TMGH
2. Mobile communications, Jochen schiller, Pearson Education,

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	60 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-545 JAVA PROGRAMMING PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-545 JAVA PROGRAMMING PRACTICAL	6 Hrs	90 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

LIST OF EXPERIMENTS

1. Write a program to find the area of a triangle.
2. Write a program to get input values principal, rate of interest and no. of years and find simple and compound interest.
3. Write a program to accept strings and arrange them in alphabetical order
4. Write a program to display mark sheet of the students using student class. Given the following attributes Reg. no (int), Name (String), Marks in Subjects (integer Array), Total (int).
5. Write a program to creating and using packages
6. Write a program to use string functions.
7. Write a program to use vectors
8. Write a program to use Interface
9. Write a program to illustrate concept of multiple inheritance
10. Write a program to create an applet with four text fields (Name, street, city and pin code) and a button. Display details in the text fields when the button is clicked.
11. Write a program to illustrate exception.
12. Write a program to illustrate thread.
13. Write a program to create a window to print a message in different size and style.
14. Write a program to create menus with JFrame.
15. Write a Java program to connect a database created in MS-ACCESS using JDBC concept.

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim ,Procedure and Programme Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	80 Hours
Revision / Repetition	10 Hours
Total	90 Hours

R5-546 VISUAL PROGRAMMING - II PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-546 VISUAL PROGRAMMING - II PRACTICAL	6 Hrs	90 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

LIST OF EXPERIMENTS

1. Accept a character from console and check the case of the character.
2. Write a program to accept any character from keyboard and display whether it is vowel or not.
3. Write a VB.Net program to accept a string and convert the case of the characters.
4. Develop a menu based VB.Net application to implement a text editor with cut, copy, paste, save and close operations.
5. Write a program to implement a calculator with memory and recall operations.
6. Develop a Form in VB.NET to pick a date from Calendar control and display the day, month, year details in separate text boxes.
7. Develop a VB.Net application to perform timer based quiz of 10 questions.
8. Develop a VB.Net application using the File and Directory controls to implement a common dialog box.
9. Develop a database application to store the details of students using ADO.NET
10. Develop a database application using ADO.NET to insert, modify, update and delete operations.

11. Develop a VB.Net application using Datagrid to add, edit, modify and display records.
12. Create a simple ASP.NET page to Output Text with a form, two HTML text boxes, an HTML button, and an HTML element. Create an event procedure for the button.
13. Create a application for Accessing a SQL Database by Using ADO.NET by connecting to the SQL Server database and call a stored procedure. You then display the data in a Repeater control.
14. Develop a web application to read the details of the selected country stored in XML database and display back to the user using Web controls
15. Develop a web application to read an XML document containing subject, mark scored, year of passing into a Data Set

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Programme Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	80 Hours
Revision / Repetition	10 Hours
Total	90 Hours

ELECTIVE PRACTICAL - I
R5-547.1 MULTIMEDIA SYSTEM PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-547.1 MULTIMEDIA PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

LIST OF EXPERIMENTS

1. Use HTML5 multimedia support to play different audio and video formats in a browser using a desktop and a mobile.

2. Use a audio processing Software and perform the audio editing tasks – Import audio, Select and edit the sound, Create fade-in fade-out effects, Label audio segments, Use noise remove filter, Mix audio, Change stereo to mono tracks, Export audio to different format and save.
3. Use a video processing Software to perform – Trim video clips, crop video, rotate video, join video, add subtitles, and edit video dimension, bit rate, frame rate, sample rate, channel, and video/audio quality tasks on a video.
4. Create a Movie from video clips to demonstrate: - Audio-Video Mixing, Music, Video Effects, Video Transitions, and Titles.
5. Using a video software display a video in background through your name using mask.
6. Create a 3D image of an object such as a magnifying glass using 3D software.
7. Create a 3D animation (such as a animated eye) using a 3D modeling software.
8. Create a moving cloud animation using any animation software.
9. Use a scanner to create two or more partial scanned images of large poster / photo. Create a panoramic view of multiple photos by stitching together them using any panorama software.
10. Create a glossy web menu bar for a using in a web page.
11. Using photo editor software and /or GIF creator software create a animation such as a flying balloon.
12. Create a pencil sketch of a picture using suitable software.
13. Use audio ripper tools to rip Audio-CDs, audio from video, audio from DVD. Convert the ripped audio into various formats. Burn the audio in to CDs.
14. Use a audio recording program to record audio from different sources of input such as line-in, PC speaker output etc applying different filters, encoding and compression schemes. Split the audio into pieces. Merge different pieces together. Use appropriate tools.
15. Use suitable software to (a) compress / decompress audio / video files. (b). convert audio / video to different formats. (c). split, join, rip audio / video.

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Design Technical Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

ELECTIVE PRACTICAL - I R5-547.2 CLOUD COMPUTING PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-547.2 CLOUD COMPUTING PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

LIST OF EXPERIMENTS

1. Find procedure to run the virtual machine of different configuration. Check how many virtual machines can be utilized at particular time.
2. Find procedure to attach virtual block to the virtual machine and check whether it holds the data even after the release of the virtual machine.
3. Install a C compiler in the virtual machine and execute a sample program.
4. Show the virtual machine migration based on certain condition from one node to other.
5. Find procedure to install storage controller and interact with it.
6. Find procedure to set up the one node Hadoop cluster.
7. Mount the one node Hadoop cluster using FUSE.
8. Write a program to use the API's of Hadoop to interact with it.
9. To learn about the Hadoop and various modules.
10. Write a word count program to demonstrate the use of Map and Reduce tasks
11. To learn about the various aspects of Cloud Service provided by Amazon EC2.
12. To learn about the various aspects of Cloud Service provided by MS Azure.
13. To learn about the Aneka and various modules.
14. To learn about the Google App Engine.
15. To learn about the Google App Business Solutions and various features

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Programme Writing	40
Executing Exercise	25
Result	05

Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

ELECTIVE PRACTICAL - I

R5-547.3 MOBILE COMPUTING PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-547.3 MOBILE COMPUTING PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

LIST OF EXPERIMENTS:

1. Write a program to demonstrate activity (Application Life Cycle)
2. Write a program to demonstrate different types of layouts
3. Write a program to implement simple calculator using text view, edit view, option button and button
4. Write a program to demonstrate auto complete text
5. Write a program to demonstrate list view
6. Write a program to demonstrate alert dialog box
7. Write a program to demonstrate photo gallery
8. Write a program to demonstrate Date picker and time picker
9. Develop an simple application with context menu and option menu
10. Develop an application for fixed dialing and call phone dialer to make a call
11. Develop an application to send SMS
12. Write a program to view, edit contact
13. Write a program to send e-mail
14. Write a program to demonstrate a service
15. Write a program to demonstrate web view to display web site

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Programming Writing	40
Executing Exercise	25
Result	05

Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

SIXTH SEMESTER
R5-641 MANAGEMENT INFORMATION SYSTEM

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-641 MANAGEMENT INFORMATION SYSTEM	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION TO MIS	13
II	BASICS OF MIS	13
III	APPLICATIONS OF MIS	13
IV	ENTERPRISE RESOURCE PLANNING	13
V	TECHNOLOGIES IN MIS	13
Total Instruction Hours		65

UNIT - I

INTRODUCTION TO MIS

13 Hrs

Introduction: Definition of MIS – impact of MIS – MIS and the user – approaches to management – management as a control system – role of MIS in management – MIS as tool for management

Organization Structure and Strategic Management: Organization structure – organization behavior – organization as a system – MIS for organization planning; essentials of strategic planning – types of strategies – tools of planning – MIS for business planning

UNIT - II

BASICS OF MIS

13 Hrs

Decision Making and Information: Decision making concepts – decision methods, tools and procedures – organizational decision making – MIS and decision making concepts; information concepts – quality of information – classification of information – methods of data and information collection – value of information – human as an information processor – MIS and the information concepts

System concepts, System Analysis and Design: System concepts – system control – types of system – MIS and system concepts – need for system analysis – system analysis of existing system – system development cycle – system development methods – computer system design – MIS and system analysis

Development of MIS: Development of long range plans for MIS – ascertaining the class of information – determining the information requirement – development and implementation of MIS – management of quality in MIS – organization for development of the MIS – factors of success and failure

UNIT - III

APPLICATIONS OF MIS

13 Hrs

Applications in Manufacturing and Service Sector: Personnel management – financial management – production management – materials management – marketing management – introduction to service sector – applications in service industry

Decision Support System: Concept – attributes of DSS – types of DSS – types of tools / models – management science models – project planning and control models; artificial intelligence systems; knowledge based expert system; MIS and the role of DSS.

UNIT - IV

ENTERPRISE RESOURCE PLANNING

13 Hrs

Enterprise Resource Planning System: Introduction – objectives – difference between ERP and conventional packages – brief history of ERP – forces of ERP – need for ERP – ERP components

Implementing an ERP: Distinctive ways of implementing an ERP – guidelines for ERP implementation – practicalities in an ERP implementation – options for implementing an ERP System – conquering implementation of ERP – dynamics that shape the price tag of ERP – ERP benefits – customers expectation in ERP packages – stumbling blocks – ERP system accomplishment – steps for avoiding pitfall – suggestions to an ERP vendor; customer relationship management; supply chain management

UNIT - V

TECHNOLOGIES IN MIS

13 Hrs

Technology of Information Systems: Introduction – data processing – transaction processing – application processing – information system processing – TQM of information systems – human factors and user interface – real time systems and design; programming languages for system coding; case tools and I-case

Business Process Re-engineering (BPR): Introduction – business process – process model of the organisation – value stream model of the organisation – relevance of information technology – MIS and BPR

Electronic Business Technology : Introduction to e-business – models of e-business – intranet / extranet – internet – world wide web (www) – electronic payment systems – security in e-business – MIS and e-business – internet and web and process of management – strategic management under web – web enabled business management – application system architecture in web – MIS in web environment

Text books:

1. Management Information Systems, W.S Jawadekar, TMGH, New Delhi, 2002
2. Management Information Systems, Sadagopan, Prentice hall of India 2005

Reference books:

1. Management Information Systems, Gordon B davis and Margethe H Olson TMGH, New Delhi 2004

Instruction Hours	65 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	75 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-642 OPEN SOURCE SOFTWARE

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			
R5-642 OPEN SOURCE SOFTWARE	5 Hrs	75 Hrs	Internal Assessment	External Exam	Total	Duration
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION AND LINUX OPERATING SYSTEM	13
II	INTRODUCTION TO PHP	13
III	PHP & MYSQL	13
IV	ADVANCED FEATURES OF PHP	13
V	OPEN SOURCE TOOLS AND TECHNOLOGIES	13
Total Instruction Hours		65

UNIT - I

INTRODUCTION AND LINUX OPERATING SYSTEM

13 Hrs

Introduction: need of open sources – advantages of open sources – applications – commercial aspects of open source movement- certification courses issues

Open Source Operating Systems: LINUX – Introduction – general overview – Kernel mode and user mode process

Advanced Concepts: Scheduling, time accounting – personalities – cloning and backup your Linux system – Linux signals – development with Linux

Linux Networking: Configuration of files – Red Hat Linux network GUI configuration tools – assigning IP address – subnets – Route – Tunneling – useful Linux network commands – enable forwarding.

UNIT - II

INTRODUCTION TO PHP

13 Hrs

PHP: Introduction – brief history of PHP – installing PHP – a walk through PHP – installing and configuring PHP on windows

Language Basics: Lexical structure – data types – variables – expressions and operators – constants – flow-control statements – including code – embedding PHP in web pages

Functions: Calling a function – defining a function – variable scope – function parameters – return values – variable functions – anonymous functions

Arrays: indexed versus associative arrays – identifying elements of an array – storing data in arrays – multidimensional arrays – extracting multiple values – converting between arrays and variables – traversing arrays – sorting – acting on entire arrays – using arrays

UNIT - III

PHP & MYSQL

13 Hrs

PHP and MySQL: Create database and tables: create a database – create a table – insert data into a database table – insert data from a form into a database

Record Selection Technology: Select data from a database table – display the result in an HTML table – the WHERE clause – the ORDER BY keyword – working with strings – date and time – working with metadata.

Objects: Terminology – creating an object – accessing properties and methods – declaring a class – introspection – serialization

UNIT - IV

ADVANCED FEATURES OF PHP

13 Hrs

Extending PHP: Architectural Overview – what you'll need – building your first extensions – the config.m4 file – memory management – the pval / zval data type – parameter handling – returning values – references – global variables – creating variables – extension INI entries – resources

Databases: Using PHP to access a database – relational databases and SQL – advanced database techniques – sample applications

UNIT - V

OPEN SOURCE TOOLS AND TECHNOLOGIES

13 Hrs

Web Server: Apache web server – working with web server – configuring and using apache web services

Open Source Software Tools: browsers – processors – compilers – model driven architecture tools

Eclipse IDE platform: Architecture – history – simultaneous releases. Case study: E-Governance – Government policy toward open source

Text books:

1. The Linux Kernel Book - Rem Card, Eric Dumas and Frank Mevel - Wiley Publications sons, 2003
2. Programming PHP - Rasmus Lerdorf and Levin Tatroe - O'Reilly Publications, 2002

Reference books:

1. MySQL Bible - Steve Suchring - John Wiley sons, 2002

Instruction Hours	65 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	75 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

ELECTIVE THEORY – II

R5-643.1 OPERATING SYSTEM

SUBJECT	INSTRUCTIONS		EXAMINATION			
R5-643.1 OPERATING SYSTEM	Hours / Week	Hours / Sem	Marks			Duration
	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	3 Hrs

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTRODUCTION TO OPERATING SYSTEMS AND COMPONENTS	10
II	OPERATING SYSTEM SERVICES , STRUCTURES, PROCESS	10
III	PROCESS SCHEDULING, DEADLOCKS, MEMORY MANAGEMENT	10
IV	VIRTUAL MEMORY, DISK AND FILE MANAGEMENT	10
V	ACCESS METHODS, SECURITY AND PROTECTION	10
Total Instruction Hours		50

UNIT - I

INTRODUCTION TO OPERATING SYSTEMS AND COMPONENTS

10 Hrs

Basics of Operating Systems: definition – generations of operating systems – types of operating systems: mainframe, desktop, multiprocessor, distributed, clustered, multiprogramming, real time, embedded and time sharing

Operating System Components: Process management component – memory management component – i/o management component – file management component – protection system – networking management component – command interpreter

UNIT - II

OPERATING SYSTEM SERVICES, STRUCTURES, PROCESS

10 Hrs

Operating System Services: Process execution – i/o operations – file manipulations – communications – error detection and recovery – resource allocation – accounting – system protection – system calls – system call execution

Operating System Structures: Simple structure, layered, monolithic, microkernel operating systems – concept of virtual machine – booting

Processes: Definition – process relationship – process states – process state transitions – process control block – context switching – threads – concept of multithreads – benefits of threads – types of threads

UNIT - III

PROCESS SCHEDULING, DEADLOCKS, MEMORY MANAGEMENT

10 Hrs

Process Scheduling: Definition – scheduling objectives – types of schedulers – scheduling criteria – CPU utilization, throughput, turnaround time, waiting time, response time (definition only) – scheduling algorithms – pre-emptive and non-preemptive – FCFS – SJF – RR – multiprocessor scheduling – types – performance evaluation of the

scheduling

Inter-process Communication and Synchronization: Definition – shared memory system – message passing – critical section – mutual exclusion – semaphores

Deadlocks: Definition – deadlock characteristics – deadlock prevention – deadlock avoidance – deadlock detection and recovery

Basic Memory Management : Definition – logical and physical address map – memory allocation – contiguous memory allocation – fixed and variable partition – internal and external fragmentation and compaction – paging – principle of operation – page allocation – hardware support for paging – protection and sharing – disadvantages of paging

UNIT - IV

VIRTUAL MEMORY, DISK AND FILE MANAGEMENT

10 Hrs

Virtual Memory: Basics of virtual memory – hardware and control structures – locality of reference, page fault, working set, dirty page/dirty bit – demand paging (concepts only) – page replacement policies – Optimal (OPT), First in First Out (FIFO), Second Chance (SC), Not Recently Used (NRU) and Least Recently used (LRU)

Disk Management: Disk structure – disk scheduling and its algorithms – raid technology
File Management: File concept – file attributes – name, identifier, type, location, size, time, date, user identification – file operations – directory structure – single level, two level, tree structure – disk space allocation methods– contiguous, linked, indexed

UNIT - V

ACCESS METHODS, SECURITY AND PROTECTION

10 Hrs

Access Methods: Sequential, random access – file system structure – byte sequence, record sequence and tree-based – disk formatting

Security and Protection: Security threats – security policies and mechanisms – authentications

Text books;

1. Operating System concepts, Abraham Siberschatz Galvin, Gagne, Wiley 9th Edition
2. Operating System Internal and Design Principles William Stallings Pearson Education 7th Edition

References:

1. Operating system Principals & Design Pal Chaudhury PHI Learning First Edition
2. Operating System William stalling Pearson Education, New Delhi. 2003
3. Operating Systems Deitel and Deitel Pearson Education, New Delhi. Third Edition, 2007
4. Operating System Rohit Khurana ITLESE Vikas Publishing Ltd First Edition 2011

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	60 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

ELECTIVE THEORY – II

R5-643.2 WEB PROGRAMMING

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-643.2 WEB PROGRAMMING	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	INTERNET & HTML	10
II	ADVANCED HTML & CSS	10
III	CLIENT SIDE SCRIPTING (JAVASCRIPT)	10
IV	SERVER SIDE SCRIPTING (JSP)	10
V	AJAX	10
Total Instruction Hours		50

UNIT - I

INTERNET & HTML

10 Hrs

Introduction to Internet: Definition of internet – history of internet – networking models: OSI networking model – TCP/IP networking model – packet switching – different types of connections: dial-up connection – SLIP / PPP protocols – ISDN – advantages and disadvantages – ADSL Connection – advantages and disadvantages – DSL – leased line – satellite connections – modem – cable modem – internet tools – web server – domain name – search engines – web browser – IP address – versions (concepts only)

Introduction to HTML: Introduction – basic tags of HTML – HTML Tag – TITLE Tag – BODY Tag; formatting of text – headers – Formatting tags: BOLD, ITALICS, UNDERLINE, PARAGRAPH, TT, STRIKETHROUGH, EM, BR and HR tags – PRE tag – FONT tag – special characters – working with images – META tag

UNIT - II

ADVANCED HTML & CSS

10 Hrs

Advanced HTML: Links – anchor tag – lists – unordered lists – ordered lists – definition lists; tables – TABLE, TR and TD tags – colspan and rowspan; frames: frameset – FRAME tag – frame inside other frames – NOFRAMES tag ; forms: FORM and INPUT tag – text box – radio button – checkbox – SELECT tag and pull down lists: hidden – submit and reset; some special tags: COLGROUP – THREAD, TBODY, TFOOT – blank, – self, – parent, – top – IFRAME – LABEL – attribute for <SELECT> – TEXTAREA

CSS: Introduction – features – style sheet basics – working with CSS files – syntax types of style sheets inline styles – embedded styles – external or linked styles

Formatting Text and Fonts: Font families font size kerning, leading and indenting – formatting colors and backgrounds – the color attribute – the background attribute – background colors and images

Exploring CSS Class and ID Attributes: Defining CSS class attribute – defining The CSS ID attribute – dynamic effects with CSS – lists – tables – forms – simple examples using above properties

UNIT - III

CLIENT SIDE SCRIPTING (JAVASCRIPT)

10 Hrs

JavaScript Basics: Need of scripting languages – variables and data types: declaring variables – life span of variables – data types – operators: assignment, comparison, computational and logical operators – control structures: conditional statements – loop statements: for, while, for in, break and continue statements

Object-Based Programming and Message boxes: Functions – executing deferred scripts – objects: document object model, predefined objects, array object, history object, location object – dialog boxes – alert boxes – confirm boxes – prompt boxes

Javascript with HTML: events – event handlers: onload and onunload – onfocus and onblur – onerror – forms: forms array – form element properties – example

Using JavaScript URLs: Client-side image maps – server side image maps – status bar – cookies – live connect – Java console – Javascript to Java – Java to Javascript communication

UNIT - IV

SERVER SIDE SCRIPTING (JSP)

10 Hrs

INTRODUCTION: Client side scripting versus server side scripting – JSP vs Javascript – advantages and disadvantages of JSP – client and server responsibilities – installing and configuring Tomcat server – JSP architecture – life cycle of a JSP page – JSP vs Servlets – JSP vs ASP.NET – list of JSP servers

JSP Elements: Comments – directives: page, include and taglib directives – scripting elements: declarations – scriptlets – expressions – simple JSP page

Implicit objects: Request, response, pagecontext, application, out, config, page, session, exception – scope: application – session – request

Writing Simple JSP programs: Convert entered text into uppercase – find the maximum of three numbers – add two numbers

UNIT - V

AJAX

10 Hrs

Introduction to AJAX: – purpose – traditional web application – Ajax application – alternatives to AJAX

Ajax Framework: Creating an XMLHttpRequest object – use prototype and script.aculo.us – basic communication techniques with server – interact with XML files in the web server – implementing basic AJAX techniques

Simple AJAX applications: i) Hello world application ii) Getting the server date time from a JSP page using AJAX iii) Develop a HTML search page using Ajax functionality and a server side script that returns results based on search criteria. Develop a HTML search page containing a textbox for taking search string as input from the user and get the results from the server using Ajax functionality, and display them on the page

Text books:

1. Web Technology N.P. Goplan, J.Akilandeswari, PHI Learning Pvt Limited, New delhi 2011
2. Internet Technology and Web Design, ISRD Group, TataMcGraw Hill, Publishing Ltd, 2011

Reference books:

- 1.HTML and Web designing Kris Jamsa and Konrad King TataMcGraw Hill Publishing Ltd 2010
- 2.Ajax: The Complete Reference Thomas Powell Mc GrawHill publications First Edition
- 3.Teach yourself Web Technologies Ivan Bayross BPB Publications, New Delhi, Second Edition 2011
- 4.Web Technology Ramesh Bangia Firewall Media, New Delhi Reprint 2008

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	60 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

ELECTIVE THEORY – II

R5-643.3 INFORMATION SECURITY

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-643.3 INFORMATION SECURITY	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

Topics and Allocation of Hours:

Unit No.	Topics	Hours
I	OVERVIEW OF INFORMATION SECURITY	10
II	SECURITY INVESTIGATION	10
III	SECURITY ANALYSIS	10
IV	SECURITY TECHNOLOGY	10
V	PHYSICAL SECURITY	10
Total Instruction Hours		50

UNIT - I**OVERVIEW OF INFORMATION SECURITY****10 Hrs**

Introduction: History of information security – critical characteristics of information NSTISSC security model: components of information system – securing components balancing information security and access: approaches to information security implementation – SDLC – security system development life cycle – SDLC and SecSDLC phase summary

UNIT - II SECURITY INVESTIGATION

10 Hrs

Need for security: Business needs – threats: definition – categories of threats, Attacks: definition – types of attacks

Secure software development: Software assurance software design principles software development security problems

Law and ethics in information security: international laws and legal bodies – ethics and information security – codes of ethics and professional organizations

UNIT - III SECURITY ANALYSIS

10 Hrs

Risk Management: overview – risk identification: asset identification vulnerability identification

Risk Assessment: Introduction – likelihood-risk determination – possible controls – risk control strategies: selecting a risk control strategy – qualitative verses quantitative risk control practices risk management discussion points: recommended risk control practices

UNIT - IV SECURITY TECHNOLOGY

10 Hrs

Firewalls: Introduction – processing modes – firewall architectures – selecting the right firewall – content filters

VPN: Introduction – transport mode – tunnel mode Intrusion Detection and Prevention Systems (IDPS): types – IDPS detection methods

Cryptography: Introduction – cipher methods – cryptographic algorithms – cryptographic tools

UNIT - V PHYSICAL SECURITY

10 Hrs

Introduction: Physical access control – major physical security controls – fire security and safety: introduction – fire detection and response FAILURE of supporting utilities and

Structural collapse: Heating, ventilation and air conditioning – power management and conditioning Interception of data: mobile and portable system – Special considerations for physical security threats

Text books:

1. Principles of Information Security, Michael E Whiteman & Herbert J Mattord, Vikas Pub. NewDelhi 2012

Reference books:

1.Hand book of Information Security Management, Micki Krause, Harold F Tipton, CRC Press LLC 2004
2.Hacking Exposed, Staurt Mc Clure Joel Scrambray George Kurtz, Tata McGrawHill, 2003

Instruction Hours	50 Hours
Continuous Assessment Test 1, Test 2 & Model Exam	07 Hours
Revision / Discussions	03 Hours
Total	60 Hours

* Pattern of the Question paper (Internal and External) - General Pattern (Theory)

R5-644 SYSTEM ADMINISTRATION PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-644 SYSTEM ADMINISTRATION PRACTICAL	6 Hrs	90 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

LIST OF EXPERIMENTS:

1. Installation of Windows 2003 / 2008 server.
2. Installing hardware, devices and drivers using device manager and driver query
3. Configure active directory services, create a user and assign permissions using logon script and group permissions.
4. Automated installation of Windows server using answer files.
5. Installing required Windows 2003 server components using control panel.
6. Installation and configuration of DHCP server.
7. Configuring disks and volumes using disk manger and managing disks and volumes from the command prompt.
8. Configure a router to connect two different networks and transfer files between them.
9. Creating a user in Linux server and assigning rights
10. a) Configuring and troubleshooting of /etc/inittab.
b) Configuring and troubleshooting of /etc/passwd
11. Configuring and troubleshooting of /etc/grub.conf
12. Linux TCP/IP network configuration
13. Installation of additional software using RPM
14. File data backup using tar
15. Web server configuration.

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Procedure Writing	30
Executing Exercise	35
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	80 Hours
Revision / Repetition	10 Hours
Total	90 Hours

R5-645 OPEN SOURCE SOFTWARE PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			
	R5-645 OPEN SOURCE SOFTWARE PRACTICAL	Hours / Week	Hours / Sem	Marks		
6 Hrs		90 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	3 Hrs

LIST OF EXPERIMENTS:

1. Install Linux server in Linux environment
2. Set up a local area network in Linux environment
3.
 - a) Connect internet in Linux environment
 - b) Setting up a print server in Linux environment
4. Setting up a web server in Linux environment
5. Generate a PHP script will display the multiples of the numbers 1 to 5 up to 5 times. The output should column format
6.
 - a) Display the week date of the current date of the machine serving PHP pages
 - b) Generate a list of possibility for two digit numbers consisting of numbers 0 to 5 using nested for loop
7. Generate a PHP script that will display the grade on the basis of marks as follows:
 Distinction – 80 and above
 First Class – From 75 to below 80
 Second Class – From 45 to below 75
 Pass Class – From 35 to below 45
 Fail – Below 35
 Test the above program using the following set of values stored in an array: 67, 82, 23, 37, 57, and 97
8.
 - a. Create a function to calculate 33% tax on the given salary Rs. 65,500.
 - b. Generate Fibonacci series for the numbers 1 to 70.
9. Create a form to capture book details.
 The HTML form should perform the following:
 Capture the data such as the book name, author name, publisher name, category and the synopsis
 Clears the form fields when reset button is clicked
 Submit the captured data when submit button is clicked
10. Create a PHP code, which will retrieve the data captured by the HTML form, display the name of the form and also display the message data entered successfully on the HTML form page after performing the following validations:
 That the book name form field is not left blank
 That the author name form field is not left blank
 That the publisher name form field is not left blank
 That the synopsis form field is not left blank
11. Develop a form to capture personnel Information
 The HTML based form should perform the following:

Captures data such as name, date of birth, address, city, state and Email

Clear the form fields when the clear button is clicked

Submit captured information, when save button is clicked

12. Create a PHP file that will validate data captured by the form. This program uses regular expressions to validate and format data.
13. Create a table that will store valid book information. The structure of the MySQL table will be as follows. (i) Table definition (ii) column definition (iii) table description
14. Create a Book Master form, which will allow
 - Inserting records in BookMaster
 - Updating records that already exists in the BookMaster.
 - Viewing records available in BookMaster.
 - Deleting Records from BookMaster.
15. Install an Apache Web server

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Procedure Writing	30
Executing Exercise	35
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	80 Hours
Revision / Repetition	10 Hours
Total	90 Hours

ELECTIVE PRACTICAL – II R5-646.1 LINUX PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-646.1 LINUX PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

LIST OF EXPERIMENTS

1. a. Logon to LINUX and logoff.
- b. Usage of directory management commands: ls, cd, pwd, mkdir, rmdir
- c. Usage of File management commands: cat, chmod, cp, mv, rm, more, file

2. Use the general purpose commands: wc, od, lp, cal , date, who , tty ,ln
3. Using the simple filters: pr, head, tail, cut, paste, nl, sort
4. Advanced filters : Search for a pattern using grep, egrep&fgrep
5. To know the details of process status- pscommand, Process management commands & nohup, kill, nic
6. Communication Commands: news, write, mail, wall, calendar
7. Write a shell-script that accepts a numerical value N. Then display the decrementing value of N till it reaches 0.
8. Write a shell-script that takes three command line arguments. The first argument is the name of the destination file and the other two arguments are names of files to be placed in the destination file.
9. Write a Shell script to print contents of file from given line number to next given number of lines
10. a)Shell script to say Good morning/Afternoon/Evening as you log in to system
b)Write a shell-script that print out date information in this order: time, day of the week, day number, year – that is like this. 13:55:00 IST Sun 9 Jun 1996
11. Write a shell-script that tells you its name and PID
12. Write programs using the following system calls of LINUX operating system fork, exec, getpid, exit, wait, close, stat, opendir, readdir
13. Write programs using the I/O system calls of LINUX operating system (open, read,write, etc)
14. Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for FCFS and SJF. For each of the scheduling policies, compute and print the average waiting time and average turnaround time.
15. Given the list of processes, their CPU burst times and arrival times display/print the Gantt chart for Priority and Round robin. For each of the scheduling policies, compute and print the average waiting time and average turnaround time.

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Procedure Writing	30
Executing Exercise	35
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

ELECTIVE PRACTICAL – II

R5-646.2 WEB PROGRAMMING PRACTICAL

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-646.2 WEB PROGRAMMING PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

LIST OF EXPERIMENTS:

1. Design a HTML page describing your profile in one paragraph. Design in such a way that it has a heading, a horizontal rule, three links and your photo. Also, write three HTML documents for the links. Include facilities for forward, backward and HOME.
2. Design a HTML page about computer languages. List the language. Each Language's name is a link. Prepare separate HTML documents for each language and call them in the appropriate link.
3. Design a single page website for your polytechnic containing a description of the courses offered. It should also contain some general information about the college such as its history, the campus, and its unique features and so on. The site should be colored and each section should have a different color.
4. Make out a brief bio-data of yours and code it as an HTML page. You can consider using tables to show your academic history.
5. Write a program using CSS to create a time table for the class.
6. Write a program using CSS to set the background colors, fonts and paragraphs
7.
 - a) Write a Java script code that converts the entered text to uppercase
 - b) Write a JavaScript code to validate the username and password. The username and password are stored in variables.
8. Write a Java Script code using frames and Events (When a cursor moves over an object it should display the specification of the object in another frame)
9. Create a site containing banner advertisement at the top of the page. The ads are changed every 10 or 15 seconds.
10. Collect the definitions of 5 items in Open Source. These definitions are stored in two string arrays name[] and defn[]. Write a JSP which has these two arrays and

supplies the definition on request. Write a HTML document which gets the user input of the name of the item and sends the request to the JSP.

11. Write a JSP code to manipulate cookies.
12. Write a JSP code to upload data from client side.
13. Create a JSP application using image map to give information about the institution
14. Write a program to check how many users have visited a website. Use Application object.
15. Write a Code in Java Script to count number of times you move over a link or record.

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim, Procedure and Programme Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

**R5-646.3 ELECTIVE PRACTICAL – II
INFORMATION SECURITY PRACTICAL**

SUBJECT	INSTRUCTIONS		EXAMINATION			
	Hours / Week	Hours / Sem	Marks			Duration
R5-646.3 INFORMATION SECURITY PRACTICAL	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	
			25	75	100	

LIST OF EXPERIMENTS:

1. Identify hardware tools and their purpose,
2. Identify software tools and their purpose
3. IP addressing basics.
4. Building hub based network & building peer to peer network
5. Configuring local area network

6. Configuring virtual local area network using L3 switches
7. Connecting CONSOLE INTERFACES
8. Subnetting a Class A, Class B & Class C Networks.
9. configuring router name and password
10. Configuring Message-of-the-Day(MOTD)
11. Connecting router LAN interfaces.
12. Configuring RIP
13. Configuring DHCP server – DNS server
14. configuring wide area network using routers
15. Testing the network layer issues using PING, NETSTAT, TRACERT

Examination Pattern:

Note: All the exercises have to be completed. Any one exercise will be given for examination. The students are allowed to select the question by lot. Record notebook should be submitted during the practical examination.

Allocation	Max. Marks
Aim Procedure and configuration Writing	40
Executing Exercise	25
Result	05
Viva-voce	05
Total	75 Marks

Theory & practical exercises	50 Hours
Revision / Repetition	10 Hours
Total	60 Hours

R5-647 PROJECT WORK

SUBJECT	INSTRUCTIONS		EXAMINATION			Duration
	Hours / Week	Hours / Sem	Marks			
R5-647 PROJECT WORK	4 Hrs	60 Hrs	Internal Assessment	External Exam	Total	3 Hrs
			25	75	100	

ENTREPRENEURSHIP, ENVIRONMENTAL & DISASTER MANAGEMENT

1. ENTREPRENEURSHIP

1.1 Introduction – Entrepreneur – characteristics of Entrepreneur – contributions of an Entrepreneur – functions of entrepreneur – Barriers to entrepreneurship – Roll of government in Entrepreneurial development.

1.2 Small scale industries (SSI) – SSI role in country’s economic growth – importance of SSI -starting of an SSI – Government organization and Non-governmental organizations supporting SSI – DIC, NSIC, SIDO, KVIC, Development banks and their objectives – role of commercial banks in assisting SSI – Women entrepreneurs and opportunities – Subsidy and concessions to Small Scale Industries.

2. ENVIRONMENTAL MANAGEMENT

- 2.1 Introduction – Environmental Ethics – Assessment of Socio Economic Impact – Environmental Audit – Mitigation of adverse impact on Environment – Importance of Pollution Control – Types of Industries and Industrial Pollution.
- 2.2 Solid waste management – Characteristics of Industrial wastes – Methods of Collection, transfer and disposal of solid wastes – Converting waste to energy – Hazardous waste management Treatment technologies.
- 2.3 Waste water management – Characteristics of Industrial effluents – Treatment and disposal methods – Pollution of water sources and effects on human health.
- 2.4 Air pollution management – Sources and effects – Dispersion of air pollutants – Air pollution control methods – Air quality management.
- 2.5 Noise pollution management – Effects of noise on people – Noise control methods.

3. DISASTER MANAGEMENT

- 3.1 Introduction – Disasters due to natural calamities such as Earthquake, Rain, Flood, Hurricane, Cyclones etc – Man-made Disasters – Crisis due to fires, accidents, strikes etc – Loss of property and life.
- 3.2 Disaster Mitigation measures – Causes for major disasters – risk identification – Hazard Zones – selection of sites for Industries and residential buildings – minimum distances from Sea – orientation of buildings – stability of structures – fire escapes in buildings – Cyclone shelters – Warning systems.
- 3.3 Disaster Management – Preparedness, Response, Recovery – Arrangements to be made in the industries / factories and buildings – Mobilization of Emergency Services – Search and Rescue operations – First Aids – Transportation of affected people – Hospital facilities – Fire fighting arrangements – Communication systems – Restoration of Power supply – Getting assistance of neighbours / other organizations in recovery and rebuilding works – Financial commitments – Compensations to be paid – Insurances – Rehabilitation.

LIST OF QUESTIONS:

1. ENTREPRENEURSHIP

1. Define the term Entrepreneur.
2. What is Entrepreneurship? Explain.
3. List the various stages of decisions an entrepreneur has to make before reaching the goal.
4. What is innovation?
5. State briefly the role of an entrepreneur in the economic growth of a country.
6. List the characteristics of an Entrepreneur.
7. What are the critical elements of an Entrepreneur?
8. State the major functions of an Entrepreneur.
9. What are barriers to Entrepreneurship?
10. Define Small Scale Industry.
11. What are the qualities of Entrepreneur?
12. What are the benefits of Entrepreneur?
13. What are the various SSI that can flourish in your district?
14. Identify the infrastructural needs for an industry.
15. What are the various agencies involved in the establishment and development of SSI?
16. Name some of the agencies funding SSI.
17. Explain the roles played by Government in Entrepreneurial development.
18. What are the various concessions and incentives available for a SSI.
19. Name some consumer products with demand that can be manufactured by a SSI?
20. What is feasibility study?
21. What is the importance of SSI?
22. What is DIC? State its functions.
23. What is NSIC? State its functions.

24. What is SIDO? State its functions.
25. Name the Development Banks in India working towards Entrepreneurial development.
26. State the role of commercial bank in assisting SSI sector.
27. What are the different phases of Entrepreneurial Development programme?
28. What is an Industrial Estate?
29. What are the facilities available in an Industrial Estate?
30. Identify the various training agencies associated with SSI.
31. List the govt. agencies from whom you shall get financial assistance for a SSI.
32. What is KVIC? State its objectives.
33. Name some state finance corporations.
34. What are the steps involved in preparing a feasibility report?
35. What are the factors to be considered regarding raw materials for a SSI?
36. What are the features of a SSI?
37. What are the advantages of becoming an Entrepreneur?
38. Name the Organizations offering assistance for the development of Women entrepreneurs.
39. State the business opportunities for Women entrepreneurs.
40. State the different subsidies given to SSI's.

2. ENVIRONMENTAL MANAGEMENT

1. What is the responsibility of an Engineer-in-charge of an Industry with respect to Public Health?
2. Define Environmental Ethic.
3. How Industries play their role in polluting the environment?
4. What is the necessity of pollution control? What are all the different organizations you know, which deal with pollution control?
5. List out the different types of pollutions caused by a Chemical / Textile / Leather / Automobile / Cement factory.
6. What is meant by Hazardous waste?
7. Define Industrial waste management.
8. Differentiate between garbage, rubbish, refuse and trash based on their composition and source.
9. Explain briefly how the quantity of solid waste generated in an industry could be reduced.
10. What are the objectives of treatments of solid wastes before disposal?
11. What are the different methods of disposal of solid wastes?
12. Explain how the principle of recycling could be applied in the process of waste minimization.
13. Define the term 'Environmental Waste Audit'.
14. List and discuss the factors pertinent to the selection of landfill site.
15. Explain the purpose of daily cover in a sanitary landfill and state the minimum desirable depth of daily cover.
16. Describe any two methods of converting waste into energy.
17. What actions, a local body such as a municipality could take when the agency appointed for collecting and disposing the solid wastes fails to do the work continuously for number of days?
18. Write a note on Characteristics of hazardous waste.
19. What is the difference between municipal and industrial effluent ?
20. List few of the undesirable parameters / pollutants anticipated in the effluents from oil refinery industry / thermal power plants / textile industries / woolen mills / dye industries / electroplating industries / cement plants / leather industries (any two may be asked)
21. Explain briefly the process of Equalization and Neutralization of waste water of varying characteristics discharged from an Industry.
22. Explain briefly the Physical treatments "Sedimentation" and "Floatation" processes in the waste water treatment.
23. Explain briefly when and how chemical / biological treatments are given to the waste water.
24. List the four common advanced waste water treatment processes and the pollutants they remove.
25. Describe refractory organics and the method used to remove them from the effluent.
26. Explain biological nitrification and de-nitrification.
27. Describe the basic approaches to land treatment of Industrial Effluent.

28. Describe the locations for the ultimate disposal of sludge and the treatment steps needed prior to ultimate disposal.
29. List any five Industries, which act as the major sources for Hazardous Air Pollutants.
30. List out the names of any three hazardous air pollutants and their effects on human health.
31. Explain the influence of moisture, temperature and sunlight on the severity of air pollution effects on materials.
32. Differentiate between acute and chronic health effects from Air pollution.
33. Define the term Acid rain and explain how it occurs.
34. Discuss briefly the causes for global warming and its consequences
35. Suggest suitable Air pollution control devices for a few pollutants and sources.
36. Explain how evaporative emissions and exhaust emissions are commonly controlled.
37. What are the harmful elements present in the automobile smokes? How their presence could be controlled?
38. What is the Advantage of Ozone layer in the atmosphere? State few reasons for its destruction.
39. Explain the mechanism by which hearing damage occurs.
40. List any five effects of noise other than hearing damage.
41. Explain why impulsive noise is more dangerous than steady state noise.
42. Explain briefly the Source – Path – Receiver concept of Noise control.
43. Where silencers or mufflers are used ? Explain how they reduce the noise.
44. Describe two techniques to protect the receiver from hearing loss when design / redress for noise control fail.
45. What are the problems faced by the people residing along the side of a railway track and near to an Airport? What provisions could be made in their houses to reduce the problem?

3. DISASTER MANAGEMENT

1. What is meant by Disaster Management? What are the different stages of Disaster management?
2. Differentiate Natural Disasters and Man made Disasters with examples.
3. Describe the necessity of Risk identification and Assessment Surveys while planning a project.
4. What is Disasters recovery and what does it mean to an Industry?
5. What are the factors to be considered while planning the rebuilding works after a major disaster due to flood / cyclone / earthquake? (Any one may be asked)
6. List out the public emergency services available in the state, which could be approached for help during a natural disaster.
7. Specify the role played by an Engineer in the process of Disaster management.
8. What is the cause for Earthquakes? How they are measured? Which parts of India are more vulnerable for frequent earthquakes?
9. What was the cause for the Tsunami 2004 which inflicted heavy loss to life and property along the coast of Tamilnadu ? Specify its epicenter and magnitude.
10. Specify the Earthquake Hazard Zones in which the following towns of Tamilnadu like: (a) Chennai (b) Nagapattinam (c) Coimbatore (d) Madurai (e) Salem.
11. Which parts of India are experiencing frequent natural calamities such as (a) heavy rain fall (b) huge losses due to floods (c) severe cyclones
12. Define basic wind speed. What will be the peak wind speed in (a) Very high damage risk zone – A, (b) High damage risk zone, (c) Low damage risk zone.
13. Specify the minimum distance from the Sea shore and minimum height above the mean sea level, desirable for the location of buildings.
14. Explain how the topography of the site plays a role in the disasters caused by floods and cyclones.
15. Explain how the shape and orientation of buildings could reduce the damages due to cyclones.
16. What is a cyclone shelter? When and where it is provided? What are its requirements?
17. What Precautionary measures have to be taken by the authorities before opening a dam for discharging the excess water into a canal/river?
18. What are the causes for fire accidents? Specify the remedial measures to be taken in buildings to avoid fire accidents.

19. What is a fire escape in multistoried buildings? What are its requirements?
20. How the inmates of a multistory building are to be evacuated in the event of a fire/Chemical spill/Toxic Air Situation/ Terrorist attack, (any one may be asked).
21. Describe different fire fighting arrangements to be provided in an Industry.
22. Explain the necessity of disaster warning systems in Industries.
23. Explain how rescue operations have to be carried out in the case of collapse of buildings due to earthquake / blast / Cyclone / flood.
24. What are the necessary steps to be taken to avoid dangerous epidemics after a flood disaster?
25. What relief works that have to be carried out to save the lives of workers when the factory area is suddenly affected by a dangerous gas leak / sudden flooding?
26. What are the difficulties faced by an Industry when there is a sudden power failure? How such a situation could be managed?
27. What are the difficulties faced by the Management when there is a group clash between the workers? How such a situation could be managed?
28. What will be the problems faced by the management of an Industry when a worker dies because of the failure of a mechanical device due to poor maintenance? How-to manage such a situation ?
29. What precautionary measures have to be taken to avoid accidents to labourers in the Industry in a workshop / during handling of dangerous Chemicals / during construction of buildings / during the building maintenance works.
30. Explain the necessity of medical care facilities in an Industry / Project site.
31. Explain the necessity of proper training to the employees of Industries dealing with hazardous products, to act during disasters.
32. What type of disaster is expected in coal mines, cotton mills, Oil refineries, ship yards and gas plants?
33. What is meant by Emergency Plan Rehearsal? What are the advantages of such Rehearsals?
34. What action you will take when your employees could not reach the factory site because of continuous strike by Public Transport workers?
35. What immediate actions you will initiate when the quarters of your factory workers are suddenly flooded due to the breach in a nearby lake / dam, during heavy rain?
36. What steps you will take to avoid a break down when the workers union of your Industry have given a strike notice?
37. List out few possible crisis in an organization caused by its workers? What could be the part of the middle level officials in managing such crisis?
38. What types of warning systems are available to alert the people in the case of predicted disasters, such as floods, cyclone etc.
39. Explain the necessity of Team work in the crisis management in an Industry / Local body.
40. What factors are to be considered while fixing compensation to the workers in the case of severe accidents causing disability / death to them?
41. Explain the legal / financial problems the management has to face if safety measures taken by them are found to be inadequate.
42. Describe the importance of insurance to men and machinery of an Industry dealing with dangerous jobs.
43. What precautions have to be taken while storing explosives in a match/ fire crackers factory?
44. What are the arrangements required for emergency rescue works in the case of Atomic Power Plants?
45. Why residential quarters are not constructed nearer to Atomic Power Plants?

Examination Pattern:

Internal Assessment:

The internal assessment should be calculated based on the review of the progress of the work done by the student periodically as follows.

Details of assessment	Period of assessment	Max. Marks
First Review	06 th week	10
Second Review	12 th week	10
Attendance	Entire semester	05
Total		25

End Semester Exam:

Details of Mark Allocation	Max Marks
Report Preparation, Demo, Viva-voce	60 Marks
4 questions from each topic in question bank consisting of Entrepreneurship, Environmental Management and Disaster Management will be asked. Out of four questions the students have to write any two questions from each topic. 2 questions x 3 topics = 6 questions (6 x 2 ½ = 15 Marks)	15 Marks
Total	75 Marks

A neatly prepared PROJECT REPORT in the following format has to be submitted individually during the Project Work & Viva-voce Autonomous examination.

FORMAT FOR PREPARATION OF PROJECT REPORT**1. ARRANGEMENT OF CONTENTS:**

The sequence in which the project report material should be arranged and bound should be as follows:

1. Cover Page & Title Page
2. Bonafide Certificate
3. Abstract
4. Table of Contents
5. List of Tables
6. List of Figures
7. List of Symbols, Abbreviations and Nomenclature
8. Chapters
9. Appendices
10. References

The table and figures shall be introduced in the appropriate places.

2. PAGE DIMENSION AND BINDING SPECIFICATIONS:

The dimension of the project report should be in A4 size. The project report should be bound using flexible cover of the thick white art paper. The cover should be printed in black letters and the text for printing should be identical.

3. PREPARATION FORMAT:

- 3.1 Cover Page & Title Page:** A specimen copy of the Cover page & Title Page and Bonafide Certificate of the project report will be given in Appendix - I and Appendix - II.

- 3.2 Bonafide Certificate:** The Bonafide Certificate shall be in double line spacing using Font Style Times New Roman and Font Size 14. The certificate shall carry the Guide's signature and shall be followed by the guide's name, Academic designation (not any other responsibilities of administrative nature), Department and full address of the Institution. The term 'GUIDE' must be typed in capital letters between the Guide's name and academic designation.
- 3.3 Abstract:** Abstract should be one page synopsis of the project report typed in double line spacing, Font Style Times New Roman and Font Size 14.
- 3.4 Table of Contents:** The table of contents should list all material following it as well as any material which precedes it. The title page and Bonafide Certificate will not find a place among the items listed in the Table of Contents but the page numbers of which are in lower case Roman letters. One and a half spacing should be adopted for typing the matter under this head.
- 3.5 List of Tables:** The list should use exactly the same captions as they appear above the tables in the text. One and a half spacing should be adopted for typing the matter under this head.
- 3.6 List of Figures:** The list should use exactly the same captions as they appear below the figures in the text. One and a half spacing should be adopted for typing the matter under this head.
- 3.7 List of Symbols, Abbreviations and Nomenclature:** One and a half spacing should be adopted or typing the matter under this head. Standard symbols, abbreviations etc. should be used.
- 3.8 Chapters:** The chapters may be broadly divided into 3 parts
 (I) Introductory chapter
 (II) Chapters developing the main theme of the project work such as
 1. Objectives
 2. Collection of data and required survey work
 3. Management and construction procedure
 4. Resources scheduling and networking
 5. Design details
 6. Required drawing set
 7. Utility to society if any, and
 (III) Conclusion.

The main text will be divided into several chapters and each chapter may be further divided into several divisions and sub-divisions. Each chapter should be given an appropriate title.

Tables and figures in a chapter should be placed in the immediate vicinity of the reference where they are cited.

Footnotes should be used sparingly. They should be typed single space and placed directly underneath in the very same page, which refers to the material they annotate.

- 3.9 Appendices:** Appendices are provided to give supplementary information, which is included in the main text may serve as a distraction and cloud the central theme.
- Appendices should be numbered using Arabic numerals, e.g. Appendix 1, Appendix 2, etc.
 - Appendices, Tables and References appearing in appendices should be numbered and referred to at appropriate places just as in the case of chapters.
 - Appendices shall carry the title of the work reported and the same title shall be made in the contents page also

3.10 Table and figures: By the word Table, is meant tabulated numerical data in the body of the project report as well as in the Appendices. All other non-verbal materials used in the body of the project work and appendices such as charts, graphs, maps, photographs and diagrams may be designated as figures.

3.11 List of References: The listing of references should be typed 4 spaces below the heading “REFERENCES” in alphabetical order in single spacing left-justified. The reference material should be listed in the alphabetical order of the first author. The name of the author / authors should be immediately followed by the year and other details.

Eg: 1. Neville, A. M., Concrete Technology, Fourth edition, Pearson Education, New Delhi.

4. TYPING INSTRUCTIONS:

The impression on the typed copies should be black in colour. One and a half spacing should be used for typing the general text. The general text shall be typed in the Font style ‘Times New Roman’ and Font size 12.

APPENDIX - I

(A typical Specimen of Cover Page & Title Page)

TITLE OF PROJECT REPORT

<1.5 line spacing>

A PROJECT REPORT

Submitted by

<Italic>

NAME OF THE CANDIDATE(S)

*Submitted for partial fulfillment of requirement for the award of the Diploma
in*

<1.5 line spacing><Italic>

BRANCH OF STUDY



**SRI RAMAKRISHNA MISSION
VIDYALAYA POLYTECHNIC COLLEGE**

<1.5 line spacing>

(AN AUTONOMOUS & ISO 9001:2008 CERTIFIED INSTITUTION)

Sri Ramakrishna Vidyalaya Post, Coimbatore – 641 020

☎ 0422-2692432 ♦ E-mail: srkvtech56@gmail.com

Fax: (0422) 2692582 ♦ Website: www.srkv.org

MONTH & YEAR

APPENDIX - II

(A typical specimen of Bonafide Certificate)

**SRI RAMAKRISHNA MISSION VIDYALAYA
POLYTECHNIC COLLEGE
COIMBATORE – 641 020**

BONAFIDE CERTIFICATE

Certified that this project report entitled “.....**TITLE OF THE PROJECT.....**” is the bonafide work done by “.....**NAME OF THE CANDIDATE.....**” with his batch-mates, in partial fulfillment of the requirement for the award of Diploma in **BRANCH OF STUDY.....** under my guidance.

<<Signature of the Head of the Department>>

<<Signature of the Guide>>

SIGNATURE

<<Name>>

HEAD OF THE DEPARTMENT

<<Academic Designation>>

<<Department>>

SIGNATURE

<<Name>>

GUIDE

<<Academic Designation>>

<<Department>>

Submitted for Autonomous Examination held on

INTERNAL EXAMINER

EXTERNAL EXAMINER