CURRICULUM – 2014

(C-14)

DIPLOMA IN
COMPUTER ENGINEERING

State Board of Technical Education & Training
Telangana State
HYDERABAD

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CURRICULUM (C-14)
FOR DIPLOMA COURSES IN Telangana

I. PREAMBLE

The State Board of Technical Education and Training, **Telangana** under the aegis of the Department of Technical Education, Telangana generally reviews the Curricula once in every five years. However, recognizing the changing needs as stated by the user industries, the Board has decided to bring forward the revision of curriculum. Consequently, the Board with the assistance of NITTTR, Chennai under the guidance of Prof. C. Nagendra Rao, performed the evaluation of C-09 Curriculum in force. On finding the merits and demerits of C-09 Curriculum the faculty have made a thorough assessment of the curricular changes that have to be brought in. It was felt that there is an urgent need to improve hands-on experience among the students pursuing diploma courses. Further, the urgency of enhancing communication skills in English was also highlighted in the feedback and suggestions made by the user industries. Keeping these in view, a number of meetings and deliberations were held at district and state level, with experts from industry, academia and senior faculty of the department. The new Curricula for the different diploma courses have been designed with the active participation of the members of the faculty teaching in the Polytechnics of Telangana, besides reviewed by Expert Committee constituted with eminent academicians.

The primary objective of the curricular change is to produce best technicians in the country by correlating growing needs of the industries with the academic input.

The revised New Curriculum i.e., Curriculum – 2014 or C-14 is vetted by NITTTR, Chennai followed by BoG approval of SBTET for its implementation with effect from 2014-15.

Salient Features:

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1. Duration of course is either 3 years / 3½ years duration of Regular Academic Instruction.

2. The Curriculum is prepared in Semester Pattern. However, First Year is maintained as Year-wise pattern.

3. The policy decisions taken at the State and Central level with regard to environmental science are implemented by including relevant topics in

Chemistry. This is also in accordance with the Supreme Court guidelines issued in Sri Mehta's case.

4. Keeping in view the increased need of communication skills which is playing a major role in the success of Diploma Level students in the Industries, emphasis is given for learning and acquiring listening, speaking, reading and writing skills in English. Further as emphasized in the meetings, Communication Skills lab and Life Skills lab are introduced in IV and V semesters respectively for all the branches except Chemical Engineering and Chemical Engineering (Sugar Technology) for which life skills is introduced at 3rd semester level..

5. In addition to Engineering Mathematics in I year (Mathematics -102) and III semester (Mathematics-301), Mathematics-401 has been introduced in the IV semester of present syllabus.

6. Modern topics relevant to the needs of the industry and global scenario suitable to be taught at Diploma level are also incorporated in the curriculum.

7. CAD specific to the branch has been given more emphasis in the curriculum. Preparing drawings using CAD software has been given more importance.

8. Every student is exposed to the computer lab at the 1st year itself in order to familiarize himself with skills required for keyboard/mouse operation, internet usage and e-mailing.

9. The number of teaching hours allotted to a particular topic/chapter has been rationalized keeping in view the past experience

10. Upon reviewing the existing C-09 curriculum, it is found that the theory content is found to have more weightage than the Practical content. In the revised C-14 curriculum, more emphasis is given to the practical content of Laboratories and Workshops, thus strengthening the practical skills.

11. With increased emphasis for the student to acquire Practical skills, the course content in all the subjects is thoroughly reviewed and structured as outcome based than the conventional procedure based. While the course content in certain subjects is reduced, in rest of the subjects the content has been enhanced as per the need.

12. A new subject **"Field Practices"** is introduced in 5th Semester. In Field Practices, the students will perform all the industry oriented activities for all types of Field tastings and make use of the machinery, equipment and tools actually used in the industry. By this, the student will get first-

hand experience of performing various practical procedures and field experiments to enhance their skills.

13. All Practical subjects are independent of each other and the practice of grouping two or more practical subjects is dispensed with.

14. Curriculae of Laboratory and Workshops have been thoroughly revised based on the suggestions received from the industry and faculty, for better utilization of the equipment available at the Polytechnics. The experiments /exercises that are chosen for the practical sessions are identified to conform to the field requirements of industry.

15. The Members of the working group are grateful to Sri Ajay Jain, I.A.S., Commissioner of Technical Education & Chairman, S.B.T.E.T. and Smt.Sailaja Ramaiyer, I.A.S., for their guidance and valuable inputs in revising, modifying and updating the curriculum.

16. The Members acknowledge with thanks the cooperation and guidance provided by the Sri. D. Venkateswarlu, Secretary, SBTET, Telangana and Dr. CN Rao, Professor and Head, NITTTR, ECH and other officials of Directorate of Technical Education and the State Board of Technical Education, Telangana, experts from industry, academia from the universities and higher learning institutions and all teaching fraternity from the Polytechnics who are directly and indirectly involved in preparation of the curricula.

II. RULES AND REGULATIONS

1. ADMISSION PROCEDURES :

1.1 DURATION AND PATTERN OF THE COURSES

All the Diploma programs run at various institutions are of AICTE approved 3 years or 3½ years duration of Academic Instruction.

All the Diploma courses are run on year wise pattern in the First year, and the remaining two or two & half years are run in the semester pattern. In respect of few courses like Diploma in Electronics with specialization in CP/ CN/ IE/ TV/ BM/ Embedded systems, the training will be in the seventh semester.

1.2 PROCEDURE FOR ADMISSION INTO THE DIPLOMA COURSES:

Selection of candidates is governed by the Rules and regulations laid down in this regard from time to time.

i) Candidates who wish to seek admission in any of the Diploma courses will have to appear for Common Entrance Test for admissions into Polytechnics (POLYCET) conducted by the State Board of Technical Education and Training, Telangana, Hyderabad.

Only the candidates satisfying the following requirements will be eligible to appear for the Common Entrance Test for admissions into Polytechnics (POLYCET).

a) The candidates seeking admission should have appeared for the X class examination, conducted by the Board of Secondary Examination, Telangana or equivalent examination thereto, at the time of making application to the Common Entrance Test for Polytechnics for admissions into Polytechnics (POLYCET). In case of candidates who apply pending results of their qualifying examinations, their selection shall be subject to production of proof of their passing the qualifying examination in one attempt or compartmentally at the time of interview for admission.

b) Admissions are made based on the merit obtained in the Common Entrance Test (POLYCET) and the reservation rules stipulated by the Government of Telangana from time to time.

c) For admission into the following Diploma Courses for which entry qualification is 10+2, candidates need not appear for POLYCET. A separate notification will be issued for admission into these courses.

1). D.H.M.C.T. 2). D.Pharmacy

1.3 MEDIUM OF INSTRUCTION

The medium of instruction and examination shall be English.

1.4 PERMANENT IDENTIFICATION NUMBER (PIN)

A cumulative / academic record is to be maintained of the Marks secured in sessional work and end examination of each year for determining the eligibility for promotion etc., a Permanent Identification Number (PIN) will be allotted to each candidate so as to facilitate this work and avoid errors in tabulation of results.

1.5 NUMBER OF WORKING DAYS PER SEMESTER / YEAR:

a). The Academic year for all the Courses usually shall be from Fifteenth June of the year of admission to the 31st March of the succeeding year.

b). The Working days in a week shall be from Monday to Saturday

c). There shall be 7 periods of 50 minutes duration on all working days.

d). The minimum number of working days for each semester / year shall be 90 / 180 days excluding examination days. If this prescribed minimum is not achieved due to any reason, special arrangements shall be made to conduct classes to cover the syllabus.

1.6 ELIGIBILITY OF ATTENDANCE TO APPEAR FOR THE END EXAMINATION

a). A candidate shall be permitted to appear for the end examination in all subjects, if he or she has attended a minimum of 75% of working days during the year/Semester.

b). Condonation of shortage of attendance in aggregate upto 10% (65% and above and below 75%) in each semester or 1st year may be granted on medical grounds.

c). Candidates having less than 65% attendance shall be detained.

d). Students whose shortage of attendance is not condoned in any semester / 1st year are not eligible to take their end examination of that class and their admissions shall stand cancelled. They may seek re-admission for that semester / 1st year when offered next.

e). A stipulated fee shall be payable towards condonation for shortage of attendance.

1.7 READMISSION

Readmission shall be granted to eligible candidates by the respective RJD / Principal.

1) Within 15 days after commencement of class work in any semester (Except industrial Training).

2) Within 30 days after commencement of class work in any year (including D. Pharmacy course or first year course in Engineering and Non Engineering Diploma streams).

Otherwise such cases shall not be considered for readmission for that semester / year and are advised to seek readmission in the next subsequent eligible academic year.

The percentage of attendance of the readmitted candidates shall be calculated from the first day of begining of the regular class work for that year / Semester, as officially announced by CTE/SBTET but not form the day on which he/she has actually reported to the class work, after readmission is granted.

2. SCHEME OF EXAMINATION

2.1 a) First Year

THEORY EXAMINATION: Each Subject carries 80% marks with examination of 3 hours duration, along with 20% marks for internal evaluation. (Sessional marks). However, there are no minimum marks prescribed for sessionals.

PRACTICAL EXAMINATION: There shall be 40% Marks for regular practical work done, i.e. sessional marks for each practical subject with an end examination of 3 hours duration carrying 60% marks. However, there are no minimum marks prescribed for sessionals.

b) III, IV, V and VI Semesters:

THEORY EXAMINATION: Each subject carries usually 80 marks and 40 marks in respect of specified subjects of 3hours duration, along with 20/ 10 marks for internal evaluation (sessional marks) respectively.

PRACTICAL EXAMINATION: Each subject carry 30/60 marks of 3hours duration 20/40 sessional marks.

2.2 INTERNAL ASSESSMENT SCHEME

a) Theory Subjects: Theory Subjects carry 20 % sessional marks, Internal examinations will be conducted for awarding sessional marks on the dates specified. **Three unit tests will be conducted for I year students**

and two Unit Tests for semesters. Average of marks obtained in all the prescribed tests will be considered for awarding the sessional marks.

b) Practicals: Student's performance in Laboratories / Workshop shall be assessed during the year of study for 40% marks in each practical subject. Allotment of marks should be discrete taking into consideration of the students skills, accuracy, recording and performance of the task assigned to him / her. Each student has to write a record / log book for assessment purpose. In the subject of Drawing, which is also considered as a practical paper, the same rules hold good. Drawing exercises are to be filed in seriatum.

c) Internal assessment in Labs / workshops / Survey field etc., during the course of study shall be done and sessional marks shall be awarded by the concerned Lecturer / Senior Lecturer / Workshop superintendent as the case may be.

d) For practical examinations, except in drawing, there shall be two examiners. External examiner shall be appointed by the Principal in consultation with respective head of the department preferably choosing a person from an Industry. Internal examiner shall be the person concerned with internal assessment as in (c) above. The end examination shall be held along with all theory papers in respect of drawing.

e) Question Paper for Practicals: Question paper should cover all the experiments / exercise prescribed.

f) Records pertaining to internal assessment marks of both theory and practical subjects are to be maintained for official inspection.

g) **In case of Diploma courses *having* Industrial Training**, the training assessment shall be done and marks be awarded in the following manner.

Industrial assessment	:	200 marks (in two spells of 100 marks each)
Maintenance of log book	:	30 marks
Record Work	:	30 marks
Seminar / viva-voce	:	40 marks
TOTAL	:	300 marks

The assessment at the institute level will be done by a minimum of three members Internal Faculty, Industrial Experts and H.O.D. and be averaged.

h) In case of Diploma courses ***not having*** **Industrial Training** in the curriculum, the students shall make **Industrial visits** as per the schedule given below**:**

S.No	Semester	Nature of Training/Exposure	Duration
1	III Semester	Industrial Visits	5 no. (One week)
2	IV Semester	Industrial Visits	5 no. (One week)
3	End of Semester Vacation of IV Semester	Industrial Training	4 Weeks
4	V Semester	Industrial Visits	5 no. (one Week)
		Simulated Industrial Training (Field Practices)	3 Weeks
5	VI Semester	Industrial Visits	5 no. (one Week)
		Total	**11 Weeks**

NOTE: No Marks shall be awarded for the above industrial visits. However, it will be evaluated as satisfactory/unsatisfactory.

2.3 MINIMUM PASS MARKS

THEORY EXAMINATION:

For passing a theory subject, a candidate has to secure a minimum of 35% in end examination and a combined minimum of 35% of both Sessional and end examination marks put together.

PRACTICAL EXAMINATION:

For passing a practical subject, a candidate has to secure, a minimum of 50% in end examination and a combined minimum of 50% of both sessional and practical examination marks put together. In case of D.C.C.P., the pass mark for typewriting and short hand is 45% in the end examination. There are no sessional marks for typewriting and Shorthand subjects of D.C.C.P course.

2.4 PROVISION FOR IMPROVEMENT

1. Improvement is allowed only after he / she has completed all the subjects from First Year to Final semester of the Diploma.
2. Improvement is allowed in any 4 (Four) subjects of the Diploma.
3. The student can avail of this improvement chance only once, that too within the succeeding two examinations after the completion of Diploma,

with the condition that the duration including Improvement examination shall not exceed FIVE years from the first admission.

4. No improvement is allowed in Practical / Lab subjects or Project work or Industrial Training assessment. However, improvement is allowed in drawing subject.
5. If improvement is not achieved, the marks obtained in previous Examinations hold good.
6. Improvement is not allowed in respect of the candidates who are punished under Mal-practice in any Examination.
7. Examination fee for improvement shall be paid as per the notification issued by State Board of Technical Education and Training from time to time.
8. All the candidates who wish to appear for improvement of performance shall deposit the original Marks Memos of all the years / Semesters and also original Diploma Certificate to the Board. If there is improvement in performance of the current examination, the revised Memorandum of marks and Original Diploma Certificate will be issued else the submitted originals will be returned.

3 RULES OF PROMOTION TO NEXT LEVEL :

3.1 For Diploma Courses (Except HMCT, Architecture, Chemical-Sugar & Auto mobile Engineering) From 1ST YEAR TO 3,rd, 4,th 5th , 6th and 7th Semesters:

1. A candidate shall be permitted to appear for first year examination provided he / she puts in 75% attendance and pays the examination fee. However, he/she can be condoned on Medical grounds upto 10% (i.e. attendance after condonation on Medical grounds should not be less than 65%) and he/she has to pay the condonation fee along with examination fee.
2. A candidate shall be promoted to 3rd semester if he/she puts the required percentage of attendance in the first year and pays the examination fee. A candidate who could not pay the first year examination fee has to pay the promotion fee as prescribed by State Board of Technical Education and Training from time to time before commencement of 3rd semester.
3. A candidate shall be promoted to 4th semester provided he/she puts the required percentage of attendance in the 3rd semester and pays the examination fee. A candidate who could not pay the 3rd semester exam fee, has to pay the promotion fee as prescribed by State Board of Technical Education and Training from time to time before commencement of 4th semester.

A candidate is eligible to appear for the 4th semester exam if he/she

i) Puts the required percentage of attendance in the 4th semester

ii) Should not have failed in more than Four backlog subjects of 1st year

4. A candidate shall be promoted to 5th semester provided he / she puts the required percentage of attendance in the 4th semester and pays the examination fee on fulfilment of 3(i)(ii) clauses stated above. A candidate, who could not pay the 4th semester examination fee, has to pay the promotion fee as prescribed by State Board of Technical Education and Training from time to time before commencement of 5th semester.

A candidate is eligible to appear for the 5th semester exam if he/she

i) Puts the required percentage of attendance in the5 th semester

ii) Should have obtained eligibility to appear for 4th Semester examination.

For IVC students.

i) Puts the required percentage of attendance in the5th semester

ii) Should have appeared for 4th Semester examination.

iii) Should not have failed in more than Four backlog subjects of III Semester

5. A candidate shall be promoted to 6th semester provided he/she has puts the required

percentage of attendance in the 5th semester and pay the examination fee, a candidate who could not pay the 5th semester examination fee, has to pay the promotion fee as prescribed by State Board of Technical Education and Training from time to time before commencement of 6th semester.

A candidate is eligible to appear for 6th semester examination if he/she

i) Puts the required percentage of attendance in 6th semester and

ii) Should not have failed in more than six backlogs subjects of 1st year, 3rd & 4th semesters put together.

For IVC students.

i) Puts the required percentage of attendance in the6th semester

ii) Should have obtained eligibility to appear for V semester examination.

iii) Should not have failed in more than Six backlog subjects of III & IV Semester put together.

3.2 For HMCT, Architecture and Chemical - Sugar courses

1) The same rules are applicable on par with other diploma courses with the exception that the Industrial Training is in the 5th semester.

2) A candidate shall be promoted to 5th semester (Industrial Training) provided he/she puts the required percentage of attendance in the 4th semester and pay the examination fee. A candidate, who could not pay the 4th semester examination fee, has to pay the promotion fee as prescribed by the SBTET from time to time before commencement of 5th semester (Industrial Training).

3) A candidate shall be promoted to 6th semester of the course provided he/she has successfully completed the Industrial Training (Passed).

A candidate is eligible to appear for the 6th semester examination if he/she

(i) Puts the required percentage of attendance in 6th semester.

(ii) Should not have failed in more than six backlog subjects of 1st Year, 3rd & 4th semesters put together.

For IVC students

i) Puts the required percentage of attendance in the6th semester

ii) Should have completed the Industrial Training.

iii) Should not have failed in more than Six backlog subjects of III & IV

Semester put together.

3.3 For Automobile Engineering Course

The same rules are applicable on par with other diploma courses with the exception that the Industrial Training is in the 6th semester.A Candidate shall be promoted to 6th semester provided he/she puts the required percentage of attendance in 5th semester and pay the examination fee. A candidate, who could not pay the 5th semester examination fee, has to pay the promotion fee prescribed by SBTET from time to time before commencement of 6th semester (Industrial Training).

Or

The Automobile Engineering Industrial Training may be shifted to 5th semester on par with **HMCT/ARCH/CH (ST)**

3.4 For Diploma Courses of 3 ½ Years duration:

3.4.1 MET/ CH/ CHPP/ CHPC/ CHOT/ TT

1. A candidate shall be permitted to appear for 1st year examination provided he / she puts in 75% attendance (which can be condoned on Medical grounds upto 10%) i.e. attendance after condonation on Medical grounds should not be less than 65% and pay the examination fee.

2. A candidate shall be promoted to 3rd semester if he/she puts the required percentage of attendance in the 1st year and pays the examination fee. A candidate who could not pay the 1st year examination fee has to pay the promotion fee as prescribed by State Board of Technical Education and Training from time to time before commencement of 3rd semester.

3. A candidate shall be promoted to 4th semester provided he/she puts the required percentage of attendance in the 3rd semester and pay the examination fee. A candidate, who could not pay the 3rd semester exam fee, has to pay the promotion fee as prescribed by State Board of Technical Education and Training from time to time before commencement of 4th semester.

   A candidate is eligible to appear for the 4th semester exam if he/she

i) Puts the required percentage of attendance in the 4th semester

ii) Should not have failed in more than Four backlog subjects of 1st year.

4. A candidate shall be promoted to 5th semester provided he / she puts the required percentage of attendance in the 4th semester and pays the examination fee. A candidate, who could not pay the 4th semester examination fee, has to pay the promotion fee as prescribed by State Board of Technical Education and Training from time to time before commencement of 5th semester.

5. Promotion from 5th to 6th semester is automatic (i.e., from 1st spell of Industrial Training to 2nd spell) provided he/she puts the required percentage of attendance, which in this case would be 90 % attendance and attends for the VIVA-VOCE examination at the end of training.

6. A candidate shall be promoted to 7th semester of the course provided he/she has successfully completed both the spells of Industrial Training (Passed).

   A candidate is eligible to appear for 7th semester examination if he/she

i) Puts the required percentage of attendance in the 7th semester and

ii) Should not have failed in more than 6 backlog subjects of 1st year,3rd and 4th semesters put together.

iii) Should not have failed in more than six backlog subjects of 3rd and 4th semester put together for IVC students.

3.4.2 For Diploma Courses of 3 ½ Years duration:

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i) In respect of Diploma in Footwear Technology, the Industrial training is offered in two spells, the 1st spell of Industrial training after the First Year (i.e. III semester of the course) and the second spell of industrial training after the V semester (i.e VI Semester of the course). The promotion rules for this course are on par with the other sandwich Diploma courses except that there is no restriction on number of backlog subjects to get eligibility to appear for the 4th semester examination and ,

   A candidate is eligible to appear for 5th semester examination if he/she

1. Puts the required percentage of attendance in the 5th semester and
2. Should not have failed in more than four subjects of 1st year.

ii) A candidate shall be promoted to 7th semester of the course provided he/she has successfully completed second spell of Industrial Training (Passed).

   A candidate is eligible to appear for 7th semester examination if he/she

1. Puts the required percentage of attendance in the 7th semester and
2. Should not have failed in more than 6 backlog subjects of 1st year and 4th semesters put together.
3. Should not have failed in more than six backlog subjects of 4th and 5th semester

   put together for IVC students.

3.4.3 For Diploma Courses of 3 ½ Years duration:

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The same rules as are applicable for conventional courses also apply for these courses. Since the industrial training in respect of these courses is restricted to one semester (6 months) after the 6th semester (3 years) of the course.

A candidate shall be promoted to 7th semester provided he/she puts the required percentage of attendance in 6th semester and pay the examination fee. A candidate, who could not pay the 6th semester examination fee, has to pay the promotion fee prescribed by SBTET

from time to time before commencement of the 7th semester (Industrial Training).

OR

Run through system for 1st Year and 3rd semester to 6/7th semester provided that the student puts in 75% of attendance (which can be condoned on medical grounds upto 10%) i.e. attendance after condonation on medical grounds should not be less than 65%.

3.5 OTHER DETAILS

a) In case a candidate does not successfully complete the Industrial training, he / she will have to repeat the training at his / her own cost.

b) The I spell of Industrial training shall commence 10 days after the completion of the last theory examination of 4th Semester.

c) The Second spell of Industrial training shall commence within 10 days after the completion of I spell of Industrial training.

d) Each Semester of Institutional study shall be a minimum of 90 working days. (With 6 working days in a week i.e. from Monday to Saturday, with 7 periods of 50 minutes, duration per day.

4 STUDENTS PERFORMANCE EVALUATION

4.1 AWARD OF DIPLOMA

Successful candidates shall be awarded the Diploma under the following divisions of pass.

1. First Class with Distinction shall be awarded to the candidates who secure an overall aggregate of 75% marks and above.

2. First Class shall be awarded to candidates who secure overall aggregate of 60% marks and above and below 75% marks.

3. Second Class shall be awarded to candidates who secure a pass with an overall aggregate of below 60%.

The Weightage of marks for various year/Semesters which are taken for computing overall aggregate shall be 25% of I year marks + 100% of 3rd and subsequent Semesters.

With respect to the intermediate vocational candidates who are admitted directly into diploma course at the 3rd semester (i.e., second year) level the aggregate of (100%) marks secured at the 3rd and subsequent semesters of study shall alone be taken into consideration for

determining the overall percentage of marks secured by the candidates for award of class/division.

4. Second Class shall be awarded to all students, who fail to complete the Diploma in the regular three years and four subsequent examinations, from the first admission.

4.2 EXAMINATION FEE SCHEDULE:

The examination fee should be paid as per the notification issued by State Board of Technical Education and Training from time to time.

4.3 STRUCTURE OF END EXAMINATION QUESTION PAPER:

The question paper for theory examination is patterned in such a manner that the Weightage of periods/marks allotted for each of the topics for a particular subject be considered.

Examination paper is of 3/6/9 hour's duration.

a) Each theory paper consists of Section 'A' and Section 'B'. Section 'A' contains 10 short answer questions. All questions are to be answered and each carries 3 marks Max. Marks: 10 x 3 = 30.

Section B contains 8 essay type questions including Numerical questions, out of which 5 questions each carrying 10 marks are to be answered.

Max.Marks: 5 x 10 = 50.

Total Maximum Marks: 80.

b) For Engineering Drawing Subject (107) consist of section 'A' and section 'B'. Section 'A' contains four (4) questions. All questions in section 'A' are to be answered and each carries 5 marks. Max. Marks: 4 x 5=20. Section 'B' contains six (6) questions. Out of which four (4) questions to be answered and each question carries 10 Marks. Max. Marks 4 x 10 = 40.

Practical Examinations

For Workshop practice and Laboratory Examinations,

Each student has to pick up a question paper distributed by Lottery System.

Max. Marks for an experiment / exercise : 50%

Max. Marks for VIVA-VOCE : 10%

Total : 60%

In case of practical examinations with 50 marks, the marks will be worked out basing on the above ratio.

In case of any change in the pattern of question paper, the same shall be informed sufficiently in advance to the candidates.

4.4 ISSUE OF MEMORONDUM OF MARKS

All candidates who appear for the end examination will be issued memorandum of marks without any payment of fee. However candidates who lose the original memorandum of marks have to pay the prescribed fee to the Secretary, State Board of Technical Education and Training, Telangana. for each duplicate memo.

4.5 MAXIMUM PERIOD FOR COMPLETION OF DIPLOMA COURSES:

Maximum period for completion of the course is twice the duration of the course from the date of First admission (includes the period of detention and discontinuation of studies by student etc) failing which they will have to forfeit the claim for qualifying for the award of Diploma (They will not be permitted to appear for examinations after that date). This rule applies for all Diploma courses of 3 years and 3 ½ years of engineering and non-engineering courses.

4.6 ELIGIBILITY FOR AWARD OF DIPLOMA

A candidate is eligible for award of Diploma Certificate if he / she fulfils the following academic regulations.

i. He / She pursued a course of study for not less than 3 / 3 ½ academic years & not more than 6 / 7 academic years.

ii. He / she has completed all the subjects.

Students who fail to fulfill all the academic requirements for the award of the Diploma within 6 / 7 academic years from the year of admission shall forfeit their seat in the course & their seat shall stand cancelled.

4.7 RECOUNTING, ISSUE OF PHOTO COPY OF VALUED ANSWER SCRIPT & REVERIFICATION:

4.7.1 a) A candidate desirous of applying for Recounting/ issue of Photo copy of valued answer scripts/ Reverification should submit the application to the Secretary, State Board of Technical Education and Training, Telangana., Hyderabad – 500 063 within 15 days from the date

of receipt of Tabulated Marks Statement by the Principal of concerned Polytechnic or the date specified.

Recounting shall be done for any TWO theory subjects per Year/Semester only, including drawing subjects. No request for recounting shall be entertained from any candidate who is reported to have resorted to Malpractice in that examination. The fee prescribed for Recounting should be paid by way of Demand Draft drawn on any Scheduled Bank payable at Hyderabad in favour of the Secretary, State Board of Technical Education and Training, Telangana., Hyderabad. The verification of the totaling will be done by an Officer of the Board and will be intimated to the candidate by post only.

The following documents should be invariably be enclosed with the application failing which the application will not be considered.

1. Marks secured as per Tabulated Marks Sheet certified by the Principal.
2. Demand draft towards the payment of fee
3. Self – addressed and stamped envelopes of 11" X 5" size.

The applications received after the prescribed date will not be accepted and any correspondence in this regard will not be entertained.

4.7.2 FOR ISSUE OF PHOTO COPIES OF VALUED ANSWER SCRIPTS

1. A candidate desirous of applying for Photo copy of valued answer script/ scripts should submit the application to the Secretary, State Board of Technical Education and Training, Telangana., Hyderabad – 500 063 along with the required fee in the form of Demand Draft within 07 days from the date of receipt of Tabulated Marks Statement by the Principal of concerned Polytechnic or the date specified in the covering letter whichever is earlier.
2. Photo copies of valued answer scripts will be issued to all theory subjects including drawing subjects.
3. The following documents should invariably be enclosed with the application

(1) Marks secured as per Tabulated Marks Sheets certified by the Principal

(2) Self-addressed Stamped Envelope/Cloth-line cover of size 10'' x 14''.

(3) Fee in the form of Demand Draft

4.7.3 FOR RE-VERIFICATION OF THE VALUED ANSWER SCRIPT

1. A candidate desirous of applying for Re-verification of valued answer script should submit the application to the Secretary, State Board of Technical Education and Training, Telangana., Hyderabad – 500 063 along with the required fee in the form of Demand Draft, within 15 days from declaration of result.

2. Re-verification of valued answer script shall be done for all theory subjects including drawing subjects.

3. The following documents should invariably be enclosed with the application failing which the application will not be considered.

(i) Marks secured as per Tabulated Marks Sheets certified by the Principal.

(ii) Fee in the form of Demand Draft.

4.7.4 MALPRACTICE CASES:

If any candidate resorts to any Mal Practice during examinations, he / she shall be booked and the Punishment shall be awarded as per rules and regulations framed by SBTET from time to time.

4.7.5 DISCREPANCIES/ PLEAS:

Any Discrepancy /Pleas regarding results etc., shall be represented to the Board within one month from the date of issue of results. Thereafter, no such cases shall be entertained in any manner.

5 ISSUE OF CERTIFICATES AND VETO

5.1. ISSUE OF DUPLICATE DIPLOMA

If a candidate loses his/her original Diploma Certificate and desires a duplicate to be issued he/she should produce written evidence to this effect. He / she may obtain a duplicate from the Secretary, State Board of Technical Education and Training, Telangana on payment of prescribed fee and on production of an affidavit signed before a First Class Magistrate (Judicial) and *non-traceable certificate* from the Department of Police. In case of damage of original Diploma Certificate, he / she may obtain a duplicate certificate by surrendering the original damaged certificate on payment of prescribed fee to the State Board of Technical Education and Training.

In case the candidate cannot collect the original Diploma within 1 year from the date of issue of the certificate, the candidate has to pay the penalty prescribed by the SBTET from time to time.

5.2 ISSUE OF MIGRATION CERTIFICATE AND TRANSCRIPTS:

The Board on payment of prescribed fee will issue these certificates for the candidates who intend to prosecute Higher Studies in India or Abroad.

5.3 GENERAL

i. The Board may change or amend the academic rules and regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students, for whom it is intended, with effect from the dates notified by the competent authority.

ii. All legal matters pertaining to the State Board of Technical Education and Training are within the jurisdiction of Hyderabad.

iii. In case of any ambiguity in the interpretation of the above rules, the decision of the Secretary, SBTET is final.

V SEMESTER

JAVA PROGRAMMING

Subject Title : JAVA Programming

Subject Code : CM - 501 / IT-501

Periods per Week : 04

Periods per Semester : 60

TIME SCHEDULE AND BLUEPRINT

S. No.	Major Topic	No. of Periods		Weightage of Marks	Short Type			Essay Type		
		Theory	Practice		R	U	App	R	U	App
	UNIT I - Features of Java	**5**		**6**						
1	Importance of Java, Compare Java & C++, Applet & its features	2	3		1	0	0	0	0	0
2	Byte Code, JVM, white space, keywords, separators, comments.	3	3		1	0	0	0	0	0
	UNIT II - Basics and usage of Classes, Objects, Inheritance	**20**		**39**						
1	Data types, literals, type conversion and casting, one dimensional & two dimensional array, operators	4	6		1	0	0	1	0	0
2	Selection & Iteration statements, jump, break & continue, classes & objects, method overloading.	8	6		0	0	1	1	0	0
3	Static & final, strings, command-line arguments, inheritance, overriding.	8	6		1	0	0	0	0	1
	UNIT III - Packages and Interfaces	**15**		**26**						
1	Packages	7	6		1	0	0	1	0	0
2	Interfaces	8	6		1	0	0	0	0	1
	UNIT IV - Multithreaded Programming and Exception Handling	**10**		**26**						
1	Threads, interthread communication, dead lock	5	6		1	0	0	1	0	0
2	Exception Handling	5	6		1	0	0	0	0	1
	UNIT V - I/O Streams and Applets	**10**		**13**						
1	I/O Streams	5	3		1	0	0	0	0	0
2	Applets	5	6		0	0	0	0	0	1
	TOTAL	60		110	10			8		

OBJECTIVES

On completion of the study of the course the student shall be able to:

1.0 Understand the Features of Java.

1.1 Describe the importance of Java in Internet programming.

1.2 Compare Java & C++.

1.3 Define an Applet.

1.4 Explain the features of Java applets.

1.5 Explain the applications of Java Applets.

1.6 Explain 'Byte codes' of Java, JVM.

1.7 Explain the process of entering and executing a Java program.

1.8 Describe white space, literals, separators, keywords in Java.

1.9 Write comment statements in Java.

2.0 Know basics & usage of Classes, Objects & Inheritance.

2.1 Explain eight simple types of data.

2.2 Explain Java literals.

2.3 Declare and initialize variables.

2.4 Perform type conversion and casting features.

2.5 Use one-dimensional and two–dimensional array.

2.6 Explain various types of operators.

2.7 Write the syntax of selection statements of Java.

2.8 Write the syntax of iteration statements of Java.

2.9 Write the syntax of jump, break, and continue statements.

2.10 Create classes and objects.

2.11 Use new operator and methods.

2.12 Use constructors.

2.13 Explain method overloading.

2.14 Use of 'this' pointer.

2.15 Explain the working of static and final.

2.16 Explain string classes and methods.

2.17 Use command-line arguments.

2.18 Implement inheritance

2.19 Create multi level hierarchy.

2.20 Use 'final' to avoid overriding.

3.0 Know how to create Package and Interfaces.

3.1 Define a package.

3.2 Describe the concept of class path.

3.3 Describe the concept of Access protection.

3.4 Use a class from another class.

3.5 Appreciate the concept of importing packages.

3.6 Explain the concept of Interfaces.

3.7 Define an Interface.

3.8 Write the difference between class and interface.

3.9 Implement interfaces.

3.10 Explain the scope of variables in interfaces.

4.0 Know Multi threaded programming and Exception handling.

4.1 Explain the thread model of Java.

4.2 Explain thread priorities.

4.3 Explain the concept of synchronization.

4.4 Implement the thread class and runnable interface.

4.5 Create thread.

4.6 Create multiple threads.

4.7 Describe alive( ), join ( ), suspend( ), resume( ) methods.

4.8 Explain Inter thread communication.

4.9 Explain dead lock.

4.10 Explain the sources of errors.

4.11 Write the advantages of Exception handling.

4.12 Explain how to deal with exceptions.

4.13 Explain the concept of Multi-catch statements programs.

4.14 Explain the types of Exceptions.

5.0 I/O streams and Applets.

5.1 Explain the concept of streams.

5.2 Explain various stream classes.

5.3 Describe the Basics of Applets – Life cycle of an applet.

5.4 Describe Applet classes, Applet Architecture.

5.5 Describe Applet Selection.

5.6 Explain the order of Applet initialization and termination.

5.7 Write a simple example for creating Applets.

COURSE CONTENTS

1. **Java Features**: Importance of Java to Internet – Java applets – Applications – Byte codes. Features of Java: OOPS concepts – literals – comments writing – key words – separators.

2. **Basics & Usages of Classes, Objects, & Inheritance:** Data types – declaring variable – scope – life time - type conversions – casting – Arrays. Operators: Types of operators – order of precedence of operators – selection statements – control statements – jump statement – break, continue statements, Usage of classes – objects – new – methods – constructors – method overloading, string classes – command line arguments. Usages of Inheritance: inheritance super class, sub classes – Multi level hierarchy – overriding

3. **Packages and Interfaces:** Concept of packages & Interfaces – importing of packages – implementing Interfaces.

4. **Multi threading and Exception Handling:** Define thread – life cycle of thread - Multi threading - Inter thread communication – Dead locks – Thread priority – Exception handling: Source of errors – error handling – avoiding, handling – throwable classes.

5. **I/O Stream and Applets:** I/O streams, Basics of Applets – creating Applet – life cycle of an applet.

REFERENCE BOOKS

1. The complete reference Java — Pattrick Naughten, Herbert Schildt TMH company Limited, New Delhi.
2. Programming in JAVA — P. Radhakrishna, University Press
3. Programming in Java — Muthu - Thomson
4. Java Foundations of Programming – NIIT, PHI
5. Programming with Java — Balagurusamy, TMH

SOFTWARE ENGINEERING

Subject : Software Engineering

Subject code : CM – 502 / IT - 502

Periods per Week : 04

Periods per semester : 60

TIME SCHEDULE & BLUE PRINT

S.No	Major topic	No.of Periods		Weightage of marks	Short type			Essay type		
		Theory	Practice		R	U	A	R	U	A
	Unit-I			13						
1	Evolution and Impact of Software Engineering	1		3						
2	Difference between Programs and Software Products	1			1					
3	Evolution of Software Engineering Design	4		5				1/2		
4	Software Life Cycle Models	4		5				1/2		
	Unit-II			29						
1	Responsibilities of a Software Project	1		3	1					
2	Project planning	2		3		1				
3	Metrics	2		5					1/2	
4	Project Estimation Techniques	3		8	1				1/2	
5	Staffing Level Estimation	2								
6	Scheduling	3		5					1/2	
7	Staffing	1								
8	Risk Management	3		5				1/2		
	Unit-III			16						
1	Requirement Gathering and Analysis	2		3	1					
2	SRS Document - Functional Requirements & Characteristics	6		13	1			1		
	Unit-IV			39						
1	Good Software Design	1		3		1				
2	Cohesion and Coupling	2		5					1/2	
3	Software design approaches	3		13	1			1		
4	User Interface Design	5								
5	Software coding and testing	5		10					1	
6	Debugging	4		8	1			1/2		
	Unit-V			13						
1	Software Reliability,	2		3	1					
2	Statistical Testing	1		5				1/2		
3	Software Quality - Management System - SEI CMM	2		5				1/2		
	Total	60		110	10			08		

OBJECTIVES

On completion of the study of the subject the student shall be able to comprehend the following

1.0 Understand the basics of Software Engineering Designs & Life Cycle Models

1.1 Know the Evolution and Impact of the Software Engineering

1.1.1 Evolution of an Art to an Engineering Discipline

1.1.2 A Solution to the Software Crisis?

1.2 Know the difference between Programs and Software Products

1.3 Understand the evolution of Software Engineering Design

1.3.1 Early Computer Programming

1.3.2 High Level Language Programming

1.3.3 Control Flow-Based Design

1.3.4 Data Structure-Oriented Design

1.3.5 Data Flow-Oriented Design

1.3.6 Object Oriented Design

1.3.7 Other Developments

1.4 Explain the Software Life Cycle Models

1.4.1 Classical Waterfall Model

1.4.2 Iterative Water fall Model

1.4.3 Prototyping Model

1.4.4 Evolutionary Model

1.4.5 Spiral Model

1.4.6 Comparison of Different Life Cycle Models

2.0 Understand the Software Project Management

2.1 Know the Responsibilities of a Software Project Manager

2.1.1 Job Responsibilities of a Software Project Manager

2.1.2 Skills Necessary for Software Project Management

2.2 Know about Software Project Planning

2.2.1 The SPMP Document

2.3 State the Metrics for Project Size Estimation

2.3.1 Lines of Code

2.3.2 Function Point Metric

2.4 Explain the three Project Estimation Techniques

2.4.1 Empirical Estimation Technique

2.4.2 Heuristic Technique

2.4.3 Analytical Estimation Technique

2.5 Explain the two different works of Staffing Level Estimations

2.5.1 Nordens Work

2.5.2 Putnam's Work

2.6 Understand the four ways of Scheduling

2.6.1 Work Break Down Structure

2.6.2 Activity Networks and Critical Path Method

2.6.3 Gantt Charts

2.6.4 PERT Charts

2.7 Learn how to do Staffing – " Who is a Good Software Engineer?"

2.8 Explain Risk Management

2.8.1 Risk Identification

2.8.2 Risk Assessment

2.8.3 Risk Containment

3.0 Understand the concepts in Requirement Analysis & Specifications

3.1 Requirements Gathering and Analysis

3.2 Software Requirement Specifications(SRS)

3.2.1 Contents of the SRS Document

3.2.2 Functional Requirements

3.2.3 How to identify the Functional Requirements

3.2.4 How to Document the Functional Requirements Traceability

3.2.5 Characteristics of a Good SRS Document

3.2.6 Examples of Bad SRS Document

3.2.7 Organization of the SRS Document

4.0 Learn and understand the concept of Software Design, Coding & Testing

4.1 What is a good Software Design?

4.2 Define and Classify Cohesion and Coupling

4.2.1 Classification of Cohesiveness

4.2.2 Classification of Coupling

4.3 Know the two approaches of Software Design

4.3.1 Function-Oriented Design

4.3.2 Object-Oriented Design

4.3.3 Function-Oriented vs Object-Oriented Design

4.4. Understand the concept of User Interface Design

4.4.1 List the Characteristics of a good User Interface.

4.4.2 Understand the Basic Concepts - User Guidance and Online Help - Mode Based vs Modeless Interface -Graphical User Interface (GUI) vs Text-Based User Interface.

4.4.3 List the two types of User Interfaces - Command Language Based Interface - Menu Based Interface - Direct Manipulation Interfaces.

4.4.4 Know about Component Based GUI Development Window System and Types of Widgets.

4.5 Understand the concept of Software Coding and Testing

4.5.1 Coding Standards and Guidelines - Code Review- Code Walk-Throughs - Code Inspection.

4.5.2 Clean Room Testing - Software Documentation- Software Testing

4.5.3 Know What is Testing?

4.5.4 Differentiate Verification and Validation -

4.5.5 List 3 Designs of Test Cases –

4.5.6 Differentiate Testing in the Large vs Testing in the Small-

4.5.7 Understand Unit Testing - Driver and Stub Modules-

4.5.8 Understand box Testing and White Box Testing.

4.6 Explain the concept of Debugging

4.6.1 Explain the Debugging Approaches.

4.6.2 List the Debugging Guidelines.

4.6.3 Program Analysis Tools - Static Analysis Tools - Dynamic Analysi Tools.

4.6.4 List and Explain the four Integration Testings - Phases vs Incremental Integration Testing- System Testing - Performance Testing.

5.0 Reliability, Quality Management & Maintenance

5.1 Understand the concept of Software Reliability

5.1.1 Differentiate Hardware Reliability and Software Reliability

5.1.2 List the different Reliability Metrics

5.1.3 Understand the Reliability Growth Modeling

5.2 Define Statistical Testing

5.3 Define Software Quality

5.4 Software Quality Management System

5.4.1 Understand the Evolution of Quality Systems

5.5 Define SEI Capability Maturity Model

COURSE CONTENTS

1. Introduction to Software Engineering- Life Cycle Models.

2. Software Project Management- Responsibilities of a Software Project Manager- Project planning – Metrics-Project Estimation Techniques- Staffing Level Estimation - Scheduling – Risk Management

3. Requirement Analysis and Specification: Requirement Gathering and Analysis - SRS document

4. Software Design , Coding and Testing: Good software design, Cohesion and Coupling, Software Design Approaches, User interface Design, Software Coding and Testing, Debugging

5. Software Reliability, Quality Management and maintenance – software Reliability- Statistical Testing, Software Quality, Software Quality Management System, SEI capability Maturity Model

REFERENCE BOOKS

1. Fundamentals of Software Engineering – Rajib Mall (PHI) Second Edition.
2. Software Engineering - Jawadekar (TMH)
3. Software Engineering Concepts - Fairley (TMH)
4. Pankaj Jalote international approach to software engineering ":2nd edition - Narosal publishing house 1997

ADVANCED DATABASE SYSTEMS

Subject Title	:	**Advanced Database Systems**
Subject Code	:	**CM– 503**
Periods per Week	:	**04**
Periods per Semester	:	**60**

TIME SCHEDULE AND BLUEPRINT

S. No.	Major Topic	No. of Periods		Weightage of Marks	Short Type			Essay Type		
		Theory	Practice		R	U	App	R	U	App
	UNIT I - Advanced Database Concepts	**5**		**16**						
1	Transaction - properties, management with SQL, log	2	0		1	0	0	1/2	0	0
2	Concurrency Control	3	0		1	0	0	1/2	0	0
	UNIT II - Distributed Database Management Systems	**20**		**29**						
1	DDBMS, advantages & disadvantages, twelve commandments	8	0		1	0	0	1	0	0
2	Distributed processing, transparency features, Distributed Database Design	12	0		2	0	0	1	0	0
	UNIT III - Object Oriented Database Systems	**15**		**26**						
1	Protocol, Inheritance	5	0		1	0	0	0	0	0
2	Object Classification, Characteristics	5	0		1	0	0	1	0	0
3	OOD management Systems	5	0		0	0	0	1	0	0
	UNIT IV - Data Warehousing	**15**		**26**						
1	DSS, Data Warehouse	8	0		1	0	0	1	0	0
2	OLAP, Star Schemes	7	0		1	0	0	1	0	0
	UNIT V - Data Mining	**5**		**13**						
1	Data Mining, On what data	2	0		1	0	0	0	0	0
2	Data mining functionalities	3	0		0	0	0	1	0	0
	TOTAL	60	0	110	10			8		

OBJECTIVES:

On completion of the study of the course the student shall be able to:

1.0 Understand Advanced Database Concepts

1.1 Define Transaction.

1.2 Explain Transaction properties.

1.3 Explain Transaction management with SQL.

1.4 Explain Transaction log.

1.5 Describe Concurrency Control

- 1.5.1 Lost updates.
- 1.5.2 Uncommitted data.
- 1.5.3 Inconsistent retrievals.
- 1.5.4 The scheduler.

2.0 Know Distributed database management Systems

2.1 Define DDBMS.

2.2 Explain the Advantages and disadvantages.

2.3 Explain Components of DDBMS.

2.4 Explain C J Date's Twelve commandments.

2.5 Describe Distributed processing

2.6 Write the difference between distributed databases & distributed processing.

2.7 Explain the Levels of data and process distribution.

2.8 Describe Distributed database transparency features

- 2.8.1 Distributed transparency.
- 2.8.2 Transaction transparency.
- 2.8.3 Performance transparency.

2.9 Describe Distributed database design

- 2.9.1 Explain Data fragmentation.
- 2.9.2 Horizontal Fragmentation.
- 2.9.3 Vertical fragmentation.
- 2.9.4 Mixed fragmentation.

2.10 Describe Data replication.

2.11 Describe Data allocation.

3.0 Know Object Oriented Database Systems

3.1 Write about Class Protocol.

3.2 Define Superclasses, subclasses, inheritance.

3.3 Describe Object classification.

3.4 Write the Characteristics of an object oriented data model

3.5 Describe Object schemas.

3.6 Describe Class-subclass relationships.

3.7 Describe Interobject relationships.

3.8 Define Late and early binding.

3.9 Describe Support for versioning.

3.10 Explain OOD management systems

3.11 Write the features of an OODBMS.

3.12 Write the advantages and disadvantages of OODBMS.

4.0 Know Data warehousing

4.1 Explain Decision support systems (DSS)

4.1.1 Write the need for Data analysis.

4.1.2 Differentiate Operator data, Decision support Data.

4.1.3 Explain DSS Database requirements.

4.2 Define data warehouse

4.2.1 Explain DSS architectural styles.

4.2.2 Explain the twelve rules that define a data warehouse.

4.3 Define Online analytical processing (OLAP)

4.4 Explain OLAP architecture.

4.5 Explain Relational OLAP.

4.6 Explain Multi Dimentional OLAP.

4.7 Differentiate ROLAP, MDOLAP.

4.8 Describe Star Schemas

4.8.1 Facts.

4.8.2 Dimensions.

4.8.3 Attributes

4.8.4 Hierarchies.

5.0 Understand Data Mining

5.1 Define data mining.

5.2 Explain Data Mining – On what kind of data.

5.3 Explain The following Data Mining functionalities.

5.3.1 Concept/ Class description : Characterization and discrimination.

5.3.2 Mining frequent patterns, Associations and correlations.

5.3.3 Classification and prediction.

5.3.4 Cluster Analysis.

5.3.5 Describe Outlier Analysis.

5.3.6 Evolution Analysis.

COURSE CONTENTS:

1. Transactions

Transaction, Transaction properties, Transaction management with SQL, Transaction log, Concurrency control, Lost updates, uncommitted data and scheduler.

2 Distributed database Management Systems

DDBMS, Advantages and disadvantages, Components of DDBMS, Twelve commandments, concept of Distributed processing, Levels of data and process distribution, Distribution transparency, Transaction transparency, Performance transparency, Data fragmentation, Horizontal fragmentation, Vertical fragmentation, Mixed fragmentation, Data replication, Data allocation.

3. Object oriented Database systems

Object schemas, Class subclass relationships, Interobject relationships, Late and early binding, Support for versioning, Features of an OODBMS, Advantages and disadvantages,

4. Data warehousing

Analyze The need for Data analysis, Distinguish between Operational data and Decision support Data, DSS Database requirements, DSS architectural styles, the Twelve rules that define a data warehouse, OLAP architecture, Relational OLAP, Star Schemes.

5. Data Mining

What is data mining, Data Mining – On what kind of data, Data Mining functionalities, Concept/ Class description : Characterization and discrimination, Mining frequent patterns, Associations and correlations, Classification and prediction, Cluster Analysis, Outlier Analysis, Evolution Analysis.

References :

1. Database Systems – Design , implementation and Management by Rob – Cornel IV edition Thomson publications
2. Data mining : Concepts and Techniques – Jiawei Han and Michelin Khamber
3. Data warehousing concepts, techniques, products and applications – CSR Prabhu II PHI
4. Data warehousing – Amitesh Sinha Thomson publications
5. Principles of Distributed Database Systems"

   -M. Timer, Ozsu and Patrick Valduriez, II edition Pearson education
6. " Object Oriented Databases" – Setrag Khos Shafian, John Wiley &Sons Inc., 1993
7. Data warehousing, Data mining and OLAP – Tata McGraw Hill Alex Berson and Stephen J Smith.

WEB DESIGNING

Subject Title	:	**Web Designing**
Subject Code	:	**CM – 504/ IT - 504**
Periods per Week	:	**04**
Periods per Semester	:	**60**

TIME SCHEDULE & BLUE PRINT

S.No	Major Topic	No. of Periods		Weightage of Marks	Short Type			Essay Type		
		Theory	Practice		R	U	App	R	U	App
	Unit - 1 : Principles of Web design			**3**						
1	Anatomy of Web page	2	0		0	0	0	0	0	0
2	Building and maintaining web site	2	0		0	1	0	0	0	0
	Unit - 2 : HTML & CSS			**29**						
1	Tags and Attributes	7	7		0	0	1	0	0	1/2
2	Presentation formats	2	3		0	1	0	0	0	1/2
3	Controls	5	4		0	0	0	0	0	1/2
4	Creating and linking style sheets	3	1		0	1	0	0	0	1/2
	Unit - 3 : XML & Web Servers			**16**						
1	Structuring data in XML	1	1		0	1	0	0	0	0
2	Parsing and Validating XML	2	0		0	0	0	1/2	0	0
3	Applications of XML	1	0		0	0	0	0	0	0
4	Client-Side versus Server-Side Scripting	1	0		0	1	0	0	0	0
5	Architecture of Web Server	1	0		0	0	0	0	1/2	0
6	Web Server examples	1	1		0	0	0	0	0	0
	Unit - 4 : JavaScript			**31**						
1	Introduction	1	0		1	0	0	0	0	0
2	Operators	1	2		0	0	0	0	0	1/2
3	Conditional and Iterative statements	6	4		0	0	0	0	0	1
4	Functions	2	2		0	0	0	0	0	1/2
5	Arrays	2	2		0	0	0	0	0	1/2
6	Objects	1	1		1	0	0	0	0	0
	Unit - 5 : PHP			**31**						
1	Fundamentals	1	0		0	1	0	0	0	0
2	Loops, Strings, Statements	8	6		0	0	1	0	0	1/2
3	Arrays	2	2		0	0	0	0	0	1/2
4	Functions	2	2		0	0	0	0	0	1/2
5	Databases	5	6		0	0	0	0	0	1/2
6	Cookies and Sessions	1	1		0	0	0	0	1/2	0
	TOTAL	60	45	110	10			08		

OBJECTIVES

On completion of the study of the course the student shall be able to:

1. Explain the principles of Web Designing.

1.1 Describe the anatomy of web page.

1.2 Illustrate the format of web page.

1.3 Identify various Web page elements.

1.4 Explain the process of navigation through web pages

1.5 State the steps in building a web site

1.6 State the steps in launching a web site.

1.7 State the steps in maintaining a web site.

2. Use various HTML tags and apply style sheets.

2.1 Describe the importance of HTML.

2.2 Use the basic tags <html>, <head>, <title>, <body>.

2.3 Use the following tags with attributes,

- <h1> to <h6>
- <q>
-
- <cite>
- <big>
- <small>
- <ins>
- <del>

2.4 Use the following presentation tags with attributes,

- <b>
- <i>
- <u>
- <strike>
- <sub>
- <sup>
-
- <font>
- <marquee>.

2.5 Use the hyperlink and imaging tags with attributes.

2.6 Use the <object> tag with all important attributes.

2.7 Use the listing tags along with attributes.

2.8 Use colors to various HTML elements.

2.9 Use the following table creation tags with attributes,

- <table>
- <col>
- <colgroup>.
- <tr>
- <td>
- <th>
- <tbody>
- <thead>
- <tfoot>

2.10 Use the following control tags with attributes,

- <form>
- <input>
- <button>
- <label>
- <select>
- <options>
- <textarea>
- <legend>.

2.11 Use the following frame tags with attributes,

- <frame>
- <frameset>
- <noframe>
- <iframe>.

2.12 Apply cascading style sheets

2.12.1 Create Inline styles.

2.12.2 Create embedded style sheets.

2.12.3 Resolve style conflicts.

2.12.4 Link external style sheets to a HTML page.

2.12.5 Place HTML elements at required position.

2.12.6 Change background colors, images etc.

2.12.7 Set the properties margin, padding, height, width to an element.

2.13 List the applications of HTML.

3. Create XML file and explain about web servers.

3.1 Create XML file

3.1.1 Describe the organization of data in the form of XML.
3.1.2 State the significance of Namespace
3.1.3 Compare and Contrast DTD and Schema
3.1.4 Understand the parsing process of XML by DOM and SAX.
3.1.5 List the applications of XML

3.2 Explain about Web servers
3.2.1 Distinguish Client-side and Server-side scripting.
3.2.2 Illustrate the architecture of Web server.
3.2.3 Identify various HTTP request types and their difference.
3.2.4 Understand the installation process of IIS, PWS and Apache web servers.
3.2.5 Compare/Contrast IIS, PWS and Apache.
3.2.6 Describe the steps to place and request HTML, PHP documents from web servers.

4. Implement client side scripting using Java Script.

4.1 Describe the need for client side scripting.
4.2 List various client side scripting languages.
4.3 Use various operators.
4.4 Use **if, if/else** and **switch** conditional statements.
4.5 Use **while**, **do/while** and **for** iterative statements.
4.6 Write small programs using conditional and iterative statements.
4.7 Understand the process of debugging JavaScript code.
4.8 Implement functions
4.8.1 Define and call a function.
4.8.2 Illustrate parameter passing.
4.8.3 List and explain global functions provided by JavaScript.
4.8.4 Explain the scope and lifetime of variables.
4.8.5 Write small programs using recursion.
4.9 Implement arrays
4.9.1 Understand single and multi dimensional arrays.
4.9.2 Declare an array.
4.9.3 Manipulate an array.
4.9.4 Write small programs using arrays.
4.10 List various Objects provided by JavaScript.

5. Implement Server side scripting using PHP.

5.1 Understand the installation of PHP
5.2 Explain the fundamentals of PHP

5.2.1 Combine HTML and PHP.
5.2.2 List and explain various Data types with examples.
5.2.3 Declare variables and constants.
5.2.4 Use various Operators.
5.3 Implement various loop statements with examples
5.4 Implement various conditional statements with examples
5.5 Understand string manipulation using string functions
5.6 Write small programs using loops and conditional statements
5.7 Implement arrays
5.7.1 Understand single and multi dimensional arrays.
5.7.2 Declare an array.
5.7.3 Manipulate an array.
5.7.4 Write small programs using arrays.
5.8 Implement functions
5.8.1 Define user defined function.
5.8.2 State the importance of user defined function.
5.8.3 Describe the process of passing arguments.
5.8.4 Explain the scope and lifetime of variables.
5.8.5 Write small programs using functions.
5.9 Implement the concept of accessing databases
5.9.1 Understand basic database concepts.
5.9.2 Explain the steps for connecting to a database
5.9.3 List and explain the steps to do the following,
5.9.3.1 Retrieving data from a table.
5.9.3.2 Inserting data into a table.
5.9.3.3 Updating the data in a table.
5.9.3.4 Deleting data from a table.
5.9.4 Write some simple programs to insert, delete, update and retrieve data from database.
5.10 Describe the significance cookie and session
5.10.1 Define Session and Cookie.
5.10.2 State the importance of Session and Cookie.
5.10.3 Create and delete a cookie.
5.10.4 Use query string to pass data.
5.10.5 Understand Session function.
5.10.6 Use session variables.
5.11 Explain the process of debugging PHP code.

COURSE CONTENTS

1. PRINCIPLES OF WEB DESIGN

Anatomy of Web page, Format, Elements, Navigation, Building, Launching and maintaining web site

2. HTML & CSS

HTML – Introduction, Format of web page, Tags and attributes, Formatting text, Adding images, Positioning. Lists, Colors, Connecting to hyperlinks, Tables, Forms, Frames

CSS – Introduction, Inline styles, Embedded style sheets, Conflicting styles, Linking external style sheets, Positioning elements, Backgrounds, Element dimensions

3. XML & Web Servers

XML – Introduction, Structuring Data, XML Namespaces, DTD and Schemas, Document Object Model (DOM), Simple API for XML (SAX), Applications of XML

Web Servers – Introduction, HTTP Request Types, System Architecture, Client-Side versus server-Side Scripting, Accessing Web Servers, IIS, PWS, Apache, Requesting HTML, PHP documents

4. JAVA SCRIPT

Introduction to Scripting, Operators, Conditional Statements, Iterative Statements, Debugging

Functions – Function definitions, Duration of Identifiers, Scope rules, Global functions, Recursion

Arrays – Declaring and allocating arrays, References and reference parameters, Passing arrays to functions, Sorting and Searching arrays, Multiple-Subscripted arrays

Objects – **Math** object, **String** object, **Date** object, **Boolean** and **Number** object.

4. PHP

Fundamentals of PHP, Loops, Strings, Statements, Arrays, Functions, Databases, Cookies, Sessions, Debugging

REFERENCE BOOKS

1) Principles of Web Design, Sklar, TMH
2) HTML complete reference, Powell, THH
3) Internet & World Wide Web , Dietel and Dietel, Pearson education Asia.
4) Straight to the point PHP, Laxmi Publications
5) Basics of Web Site Design, NIIT – PHI
6) WWW Design with HTML, Xavier (TMH)

MOBILE COMMUNICATIONS

Subject Title : Mobile Communications

Subject Code : CM – 505

Periods per Week : 04

Periods per Semester : 60

TIME SCHEDULE & BLUE PRINT

S.No	Major topic	No.of Periods		Weightage of marks	Short type			Essay type		
		Theory	Practice		R	U	A	R	U	A
	Unit-I									
1	Applications, History of wireless communication, A simplified reference model	2		3	1	0				
2	Cellular systems	1		3		0				
3	Protocol and the TCP/IP suite	1			1	0				
4	Internet working, Internet protocol, Transmission control protocol, User datagram protocol	2		10	0	0		1/2		
5	Medium access control Motivation for specialized MAC Hidden & exposed terminals Near & far terminals	2			0	0		1/2		
	Unit-II									
1	Introduction, Mobile services	4		3	1					
2	System architecture			5					1/2	
3	Radio interface	2		5					0	
4	Protocols	2							1/2	
5	Localization & calling	2		5	0				1/2	
6	Handover	3		5	0				0	
7	Security				0				1/2	
8	New data services	2		3	1					
	Unit-III									
1	Satellite Systems	5		13	1	0		1	0	
2	Broadcast Systems	5		13	1	0		1	0	
	Unit-IV									
1	Infrared versus radio transmission	1		10					½	
2	Infrastructure & adhoc network	1							½	
3	IEEE 802.11	7		8	0	1			1/2	
4	Bluetooth: Applications & Standards	8		8	1				½	
	Unit-V Network Management									
1	Mobile IP	5		5	0	0			1/2	
2	IPV6			5					0	
3	DHCP	1							1/2	
4	Mobile Transport Layer	3		3	1					
5	Generations of Wireless Technology	1		3	1					
	Total	60		110	10			08		

OBJECTIVES

On completion of the study of the subject the student shall be able to comprehend the following

1.0 Understand the basic concepts of Mobile Communications

1.1 Application

1.2 History of wireless communication

1.3 A simplified reference model

1.4 Cellular systems

1.5 Protocol and the TCP/IP suite

- 1.5.1 The need for a protocol architecture
- 1.5.2 The TCP/IP protocol architecture
- 1.5.3 Internet working
- 1.5.4 Internet protocol
- 1.5.5 Transmission control protocol
- 1.5.6 User datagram protocol

1.6 Medium access control

- 1.6.1 Motivation for specialized MAC
- 1.6.2 Hidden & exposed terminals
- 1.6.3 Near & far terminals

2.0 Understand the Concept of GSM technology in TELECOMMUNICATIONS SYSTEMS

2.1 GSM

2.2 Mobile services

2.3 System architecture

2.4 Radio interface

2.5 Protocols

2.6 Localization & calling

2.7 Handover

2.8 Security

2.9 New data services

3.0 Understand the concepts of SATELLITE SYSTEMS & BROADCASTING SYSTEMS

3.1 Satellite Systems

- 3.1.1 Applications
- 3.1.2 Basics
- 3.1.3 GEO
- 3.1.4 LEO
- 3.1.5 MEO
- 3.1.6 Routing
- 3.1.7 Localization
- 3.1.8 Handover

3.2 Broadcast systems

- 3.2.1 Over view
- 3.2.2 Cyclic repetition of data
- 3.2.3 Digital audio broadcasting
- 3.2.4 Multimedia object transport protocol
- 3.2.5 Digital video broadcasting

4.0 Understand the WIRELESS LAN technology

4.1 Differentiate Infrared and radio transmission

4.2 Explain Infrastructure network & ad hoc network

4.3 Explain IEEE 802.11

- 4.3.1 System architecture
- 4.3.2 Protocol architecture
- 4.3.3 Physical layer
- 4.3.4 Medium access control layer
- 4.3.5 Mac management
- 4.3.6 Future development

4.4 Explain Bluetooth

- 4.4.1 Bluetooth application
- 4.4.2 Bluetooth standards documents
- 4.4.3 Protocol architecture

4.4.4 Usage models

4.4.5 Piconets & Scatternets

4.4.6 Radio specification

4.4.7 Base band specification

4.4.8 Frequency hopping

4.4.9 Physical links

4.4.10 Packets (outline)

4.4.11 Error Correction

4.4.12 Logical channels

4.4.13 Channel control

4.4.14 Bluetooth Security

4.4.15 Link manager specification (outline)

4.4.16 Logical link control and adaptation protocol (outline)

4.4.17 L2CAP Channels

4.4.18 L2CAP packets

4.4.19 Signaling commands

4.4.20 Quality of service

5.0 Mobile network layer

5.1 Explain about Mobile IP

5.1.1 List the Goals, assumptions & requirements of Mobile IP

5.1.2 Define the Entities & terminology used in Mobile IP

5.1.3 Explain the process of IP packet delivery

5.1.4 Explain about Agent advertisement & discovery

5.1.5 Explain Registration

5.1.6 Explain Tunneling & encapsulation

5.1.7 List the Optimizations

5.1.8 Explain the process of Reverse tunneling

5.1.9 Understand Ipv6

5.2 Explain Dynamic host configuration protocol

5.3 Understand the following transmission techniques in Mobile transport layer

5.3.1 Traditional TCP

5.3.2 Congestion control

5.3.3 Slow start

5.3.4 Fast retransmit & fast recovery

5.3.5 Transmission / time out freezing

5.3.6 Selective retransmission

5.3.7 Transaction oriented TCP

5.4 List the features of 1G, 2G, 3G and 4G

COURSE CONTENTS :

1.0 INTRODUCTION

Application History of wireless communication A simplified reference model Cellular systems Protocol and the TCP/IP suite . The need for a protocol architecture The TCP/IP protocol architecture

Internet working Internet protocol Transmission control protocol User datagram protocol Medium access control Motivation for specialized MAC Hidden & exposed terminals Near & far terminals

2.0 Telecommunication Systems

GSM: Mobile services System architecture Radio interface Protocols Localization & calling Handover Security New data services

3.0 Satellite Systems & Broadcasting Systems

Satellite Systems:Applications, Basics: GEO LEO MEO, Routing, Localization, Handover

Broadcast systems: Over view, Cyclic repetition of data, Digital audio broadcasting, Multimedia object transport protocol, Digital video broadcasting

4.0 Wireless LAN

Infrared versus radio transmission Infrastructure & adhoc network

IEEE802.11: System architecture, Protocol architecture, Physical layer, Medium access control layer, Mac management, Future development

Bluetooth: Bluetooth application, Bluetooth standards documents, Protocol architecture Usage models Piconets & Scatternets, Radio

specification Baseband specification, Frequency hopping, Physical links Packets(outline), Error Correction, Logical channels Channel control, Bluetooth Security, Link manager specification (outline), Logical link control and adaptation protocol (outline), L2CAP Channels, L2CAP packets, Signaling commands, Quality of service

5.0 Mobile network layer

Mobile IP: Goals, assumptions & requirements, Entities & terminology, IP packet delivery, Agent advertisement & discovery, Registration, Tunneling & encapsulation, Optimizations, Reverse tunneling, Ipv6

Dynamic host configuration protocol,

Mobile transport layer: Traditional TCP, Congestion control, Slow start, Fast retransmit & fast recovery, Transmission / time out freezing, Selective retransmission, Transaction oriented TCP

Generations of Wireless Technology - 1G, 2G, 3G and 4 G

REFERENCE BOOKS

1. Mobile communications - Jochen schiller, Pearson pub.
2. Wireless communications & networks - William stallings PHI

CLOUD COMPUTING

Subject : Cloud Computing

Subject Code : CM-506

Periods/Week : 4

Periods/Semester : 60

TIME SCHEDULE & BLUE PRINT

S.No	Major topic	No.of Periods		Weightage of marks	Short type			Essay type		
		Theory	Practice		R	U	A	R	U	A
	Unit-I Introduction to Cloud Computing									
1	Recent trends in Computing	1	0	3	0	1	0	0	0	0
2	Cloud Computing - Definition, History, Features, Principles & Challenges, Cloud Service Providers	5	0	6	1	1	0	0	0	0
3	Advantages and disadvantages of Cloud Computing, Comparison among recent trends of computing	2	0	5	0	0	0	0	1/2	0
	Unit-II Parallel and Distributed Computing									
1	Eras of Computing Concepts of Parallel Computing	5	0	13	1	0	0	0	1	0
2	Concepts of Distributed Computing	7	0	10	0	0	0	0	1	0
3	Parallel Vs Distributed Computing	1	0	3	1	0	0	0	0	0
	Unit-III Virtualization									
1	Introduction, Characteristics of Virtualized environments	1	0	3	1	0	0	0	0	0
2	Classification of Virtualization Techniques - Machine Level, Hardware Level, Operating system level, Programming Level, Application level	10	0	10	0	0	0	0	1	0
3	Virtualization and Cloud Computing, Pros and Cons of Virtualization,Virtualization Technologies – Examples	3	0	13	1	0	0	0	1	0
	Unit-IV Cloud Computing Architecture									
1	Cloud Reference Model – Architecture,Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS)	8	0	13	1	0	0	0	1	0
2	Types of Clouds– Public Clouds, Private Clouds, Hybrid Clouds and Community Clouds. Economics of Cloud	5	0	10	0	0	0	0	1	0
	Unit-V Cloud Security and Applications									
1	Security, Privacy and Trust	1	0	3	1	0	0	0	0	0
2	Infrastructure Security	5	0	10	0	0	0	0	1	0
3	Data Security	5	0	5	0	0	0	0	1/2	0
4	cloud applications	1	0	3	1	0	0	0	0	0
	Total	60		110	10			08		

OBJECTIVES:

On completion of the study of the subject, the student shall be able to

1.0 **Understand the basics of Cloud Computing:**

1.1 Define the following terms related to recent trends in Computing

- 1.1.1 Cluster Computing
- 1.1.2 Grid Computing
- 1.1.3 Distributed Computing
- 1.1.4 Utility Computing

1.2 Define Cloud Computing

1.3 State the history of Cloud Computing

1.4 List the features of Cloud Computing

1.5 State the basic principles of Cloud Computing

1.6 List the challenges of Cloud Computing

1.7 List the Cloud Service Providers

1.8 State the advantages and disadvantages of Cloud Computing

1.9 Compare Cluster Computing, Grid Computing, Distributed Computing, Utility Computing and Cloud Computing

2.0 Understand the concepts of Parallel and Distributed Computing

2.1 Know the eras of Computing

2.2 Understand the concepts of Parallel Computing

- 2.2.1 Parallel Computing
- 2.2.2 Hardware architecture for parallel processing
- 2.2.3 Approaches to parallel processing
- 2.2.4 Levels of Parallelism
- 2.2.5 Laws of Cautions

2.3 Understand the concepts of Distributed Computing

- 2.3.1 General Concepts and Definitions,

- 2.3.2 Components of a Distributed System,
- 2.3.3 Architectural Styles for Distributed Computing
  - 2.3.3.1 Software architectural Styles
  - 2.3.3.2 System Architectural Styles
- 2.3.4 Explain the models for Inter Process Communication
- 2.3.5 Know the technologies for Distributed Computing
  - 2.3.5.1 Remote Procedure Call,
  - 2.3.5.2 Distributed Object Frame Work
  - 2.3.5.3 Service Oriented Computing

2.4 Differentiate Parallel and Distributed Computing

3.0 Understand the concepts of Virtualization

3.1 Define the term Virtualization

3.2 State the different characteristics of Virtualization

3.3 Classify and explain Virtualization Techniques

- 3.3.1 Machine Reference Model
- 3.3.2 Hardware Level Virtualization
- 3.3.3 Hardware Virtualization Techniques
- 3.3.4 Operating System Level Virtualization
- 3.3.5 Programming Language Level Virtualization
- 3.3.6 Application Level Virtualization

3.4 Explain the role of virtualization in Cloud Computing

3.5 State the Pros and Cons of Virtualization

3.6 Know the Virtualization Technologies – Examples

- 3.6.1 Xen
- 3.6.2 VM ware
- 3.6.3 Microsoft Hyper – V

4.0 Understand the Architecture of Cloud Computing

4.1 Describe the Cloud Reference Model –

- 4.1.1 Architecture
- 4.1.2 Infrastructure as a Service (IaaS)
- 4.1.3 Platform as a Service (PaaS)
- 4.1.4 Software as a Service (SaaS)

4.2 Explain the different types of Clouds (Deployment Models)

- 4.2.1 Public Clouds
- 4.2.2 Private Clouds
- 4.2.3 Hybrid Clouds
- 4.2.4 Community Clouds

4.3 Know the economics of Cloud

5.0 Cloud Security and Applications

5.1 Define Security, Privacy and Trust

5.2 Explain Infrastructure Security

- 5.2.1 Network Level Security
- 5.2.2 Host Level Security
- 5.2.3 Application Level Security

5.3 Explain Data Security

- 5.3.1 Aspects of Data Security
- 5.3.2 Data Security Mitigation

5.4 Applications of cloud computing

- 5.4.1 Scientific Applications
  - 5.4.1.1 Health Care
  - 5.4.1.2 Biology
  - 5.4.1.3 Geo-Science – Satellite Image Processing
- 5.4.2 Business and Consumer Applications,
  - 5.4.2.1 Social Networking

- 5.4.2.2 Media Applications
- 5.4.2.3 Multiplayer Online Gaming
- 5.4.2.4 CRM and ERP

COURSE CONTENTS

1. Introduction to Cloud Computing

Recent Trends in Computing, History of Cloud Computing,

Features, Principles and Challenges of Cloud Computing, Cloud Service Providers

Advantages and Disadvantages of Cloud Computing, Compare Cluster Computing, Grid Computing, Distributed Computing, Utility Computing and Cloud Computing

2. Parallel and Distributed Computing

Eras of Computing, Concepts of Parallel Computing, Concepts of Distributed Computing, Parallel Vs Distributed Computing

3. **Virtualization**

Introduction, Characteristics of Virtualized environments, Classification of Virtualization Techniques, Role of Virtualization in Cloud Computing, Pros and Cons of Virtualization Virtualization Technologies – Examples (Xen, VM ware, Microsoft Hyper-V)

4. Cloud Computing Architecture

Cloud Reference Model – Architecture, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS)

Types of Clouds(Deployment models)– Public Clouds, Private Clouds, Hybrid Clouds and Community Clouds.

Economics of Cloud

5. Cloud Security and Applications Security, Privacy and Trust

Infrastructure Security, Data Security, Cloud applications.

REFERENCES

1. Cloud Computing : Principles and Paradigms
   – Rajkumar Buyya, James Broberg and Andrzej Goscinski
2. Mastering Cloud Computing
   – Rajkumar Buyya, Christian Vecchiola, S.Thamarai Selvi
3. Cloud Security and Privacy
   – Tim Mather, Subra Kumaraswamy, Shahed Latif
4. First Steps in Cloud Computing
   – Navin Sabharwal, Ravi Shankar

JAVA PROGRAMMING LAB PRACTICE

Subject Title	:	**Java Programming lab Practice**
Subject Code	:	**CM – 507**
Periods per Week	:	**04**
Periods per Semester	:	**60**

List of Exercises

1. Write programs using Java built-in functions using all data types.
2. Write programs using conditional statements and loop statements.
3. Write a program to read data from keyboard.
4. Write a program to create class and objects.
5. Write programs using constructors.
6. Write a program to illustrate usage of command line arguments.
7. Write programs using concept of overloading methods.
8. Exercise on inheritance.
9. Write a program using the concept of method overriding.
10. Exercise on importing packages.
11. Exercise on interfaces.
12. Exercise on exception handling.
13. Exercise on multithreading and thread priorities.
14. Exercise on applets.

Objectives and key competencies.

Exp. No.	Name of the experiment	Objectives	Key Competencies
1	Write programs using Java built-in functions using all data types.	(a) Write programs using the primitive data types. (b) Display the data.	(a) Identify the data types. (b) Use println() method. (c) Compile the program. (d) Rectify the errors. (e) Observe the output.
2	Write programs using conditional statements and loop statements.	(a) Write program using if statement. (b) Write program using while, do and for constructs.	(a) Identify the differences between C, C++ and Java. (b) Compile the program and rectify the errors. (c) Observe the output.
3	Write a program to read data from keyboard.	(a) Write a program to give values to variables interactively through the keyboard. (b) Write program using different data types.	(a) Use different data types. (b) Use readLine() method. (c) Use println() method. (d) Observe the output.
4	Write a program to create class and objects.	(a) Write a program to create a class and create objects. (b) Write a program to create class and access class members.	(a) Create class. (b) Declare methods. (c) Create objects. (d) Write main method. (e) Access class members.
5	Write programs using constructors.	(a) Write a program using default constructor. (b) Write a program using parameterized constructor.	(a) Declare and define constructor. (b) Call default constructor. (c) Call parameterized constructor.
6	Write a program to illustrate usage of command line arguments.	Write a program to illustrate usage of command line arguments.	(a) Use command line arguments. (b) Run the program. (c) Observe the output.
7	Write programs using concept of overloading methods.	(a) Write a program to illustrate method overloading. (b) Write a program to illustrate method overloading using constructors.	(a) Observe method overloading. (b) Overload constructor methods.
8	Exercise on inheritance.	Write a program to illustrate single inheritance.	(a) Create base class. (b) Write base class constructor. (c) Create derived class. (d) Use *extends* keyword. (e) Use *super* keyword. (f) Write derived class constructor.
9	Write a program using the concept of method overriding.	Write a program using the concept of method overriding.	(a) Use method overriding. (b) Use *this* keyword.
10	Exercise on importing packages.	Write a program to create and use a package.	(a) Create package. (b) Use of access specifiers. (b) Use package. (c) Use *import* keyword.
11	Exercise on interfaces.	Write a program to illustrate multiple inheritance using interfaces.	(a) Define interface. (b) Use *extends* keyword. (c) Use *implements* keyword. (d) Access interface variables.
12	Exercise on exception handling	(a) Write a program to illustrate exception handling. (b) Write a program to illustrate exception handling using multiple catch statements.	(a) Use try – catch. (b) Use multiple catch blocks. (c) Use finally statement.
13	Exercise on multithreading and thread priorities.	(a) Write a program to create a thread by extending the thread class. (b) Write a program to create a thread by implementing the runnable interface. (c) Write a program to illustrate thread priorities.	(a) Use *extends*, *new*. (b) Use run() and start() methods. (c) Observe thread execution. (d) Use *implements runnable* interface. (e) Use setPriority() and getPriority() methods.
14	Exercise on applets.	Write a program to create an applet.	(a) Use <applet>…</applet> tag. (b) Add applet to html file. (c) Run the applet.

LIFE SKILLS

(Common to all Branches)

Subject Title	**:**	**Life skills**
Subject Code	**:**	**CM- 508**
Periods per week	**:**	**03**
Period per semester	**:**	**45**

TIME SCHEDULE

Sl No.	Major Topics	No. of periods
1.	Concept of life skills	03
2.	Enhancing self esteem	03
3.	Goal setting	03
4.	Positive attitude	03
5.	Managing emotions	06
6.	Stress management	06
7.	Time management	03
8.	Interpersonal skills	03
9.	Creativity	03
10.	Problem solving and Decision making skills	03
11.	Assertiveness	06
12.	Leadership skills &Team spirit	03
TOTAL		45

Note: No Written Examination

The students may be asked to demonstrate 1 or 2 skills from unit 2 to unit 12.

Marks: Internal – 40; External - 60

OBJECTIVES

On the completion of the course the students shall be able to

1.0 Understand the concept of Life Skills

1.1 Define Life Skills

1.2 Explain need and impact of Life Skills Programme

1.3 List the elements of Life Skills

1.4 Identify the sources of Life Skills

2.0 Understand the concept of Self esteem

2.1 Define the term self esteem

\2.2 Explain the concept of Self esteem

2.3 List the characteristics of High Self esteem

2.4 List the characteristics of Low Self esteem

2.5 Explain the advantages of High Self esteem

2.6 Explain the behaviour patterns of Low self esteem

2.7 Explain the causes of Low self esteem

2.8 List the steps to build a positive Self esteem

Practicals

Exp No	Exercise	**Activity (**Questionnaire / Game and Role play)
1.	Identifying the Behaviour	• Identifying the behavior patterns of low self-esteem people.
2.	Practice Positive Self Esteem	• Steps to build a positive self esteem

3.0 Understand the concept of Goal setting

3.1 Define the term Goal

3.2 Explain the significance of Goal setting

3.3 Explain the following concepts

a) Wish b) Dream c) Goal

3.4 Explain the reasons for not setting goals

3.5 Explain effective goal setting process

3.6 List the barriers to reach goals

Practicals

Exp No	Exercise	Activity
1.	Differentiate among Wish, Dream and Goal	• Draw a picture of Your Self/ Your Country/ Your Society after 10yrs. • Discussion: Setting Personal Goals • Story Telling • Identifying of barriers • Analysis barriers • Overcoming barriers

4.0 Practise positive attitude

4.1 Define Attitude

4.2 Explain the concept of positive attitude

4.3 Explain the concept of negative attitude

4.4 Explain the effects of negative attitude

4.5 Identify the attitude of self and peers

4.6 Explain the effect of peers on self and vice-versa.

4.7 List the steps to enhance positive attitude

4.8 Explain the strategies to enhance positive attitude

Practicals

Exp No	Exercise	**Activity** (Psychological Instrument/ Game & Role play)
1.	Identify Positive attitude	• To study & to identify the attitude of self and peer • List & practise the strategies to enhance positive attitude.
2.	Observe	• Positive attitudes of self and Peers • Negative attitudes of self and Peers
3.	Practice Strategies to enhance Positive attitude	• Celebrating success • Listing successes

5.0 Practise managing emotions

5.1 Explain the concept of emotion

5.2 List the different types of emotions

5.3 Differentiate between positive and negative emotions

5.4 Identify the type of emotion

5.5 Explain the causes of different types of emotions.

5.6 Implement methods to manage major emotions (anger / depression)

5.7 Define Emotional Intelligence.

5.8 Explain the method to enhance Emotional Intelligence.

Practicals

Exp No	Exercise	**Activity** (Story / simulated situational act /GD & Role play)
1.	Identify the Type of Emotion	• To identify the type and to study the cause of the emotion.
2	Managing Emotions	• Managing major emotions -Anger and Depression

6.0 Practise stress management skills

6.1 Define Stress

6.2 Explain the concept of stress

6.3 List the types of stress

6.4 Explain the causes of stress

6.5 Comprehend the reactions to stress

a) Physical b) Cognitive c) Emotional d) Behavioural

6.6 Explain the steps involved in coping with stress by

a) Relaxation b) Meditation c) Yoga

6.7 Practice stress relaxing techniques by 3 methods.

a) Relaxation b) Meditation c) Yoga

6.8 Comprehend changing personality and cognitive patterns.

6.9 Observe changing personality and cognitive patterns.

Practicals

Exp No	Exercise	**Activity**(Questionnaire /Interview and practice)
1	Identify the type of stress	• To study & to identify the type and causes of stress.
2	Stress –Relaxation Techniques	• Practice some simple Stress –Relaxation Techniques, Meditation, Yoga.

Practise some simple Stress –Relaxation Techniques, Meditation, Yoga.

7.0 Practice Time Management Skills

7.1 Define Time management.

7.2 Comprehend the significance of Time management.

7.3 Explain the strategies to set priorities.

7.4 List the steps to overcome barriers to effective Time management.

7.5 Identify various Time stealers.

7.6 Explain Time-Management skills.

7.7 List different Time-Management skills.

7.8 Comprehend the advantages of Time-Management skills.

Practicals

Exp No	Exercise	**Activity** (Group work and Games)
1	Identify Time stealers	• Assign a activity to different Groups –Observe the time of accomplishing the task, Identify the time stealers.
2.	Practice Time-Management skills	• Perform the given tasks- Games

8.0 Practise Interpersonal skills

8.1 Explain the significance of Interpersonal skills.

8.2 List the factors that prevent building and maintaining positive relationships.

8.3 Advantages of positive relationships.

8.4 Disadvantages of negative relationships

Practicals

Exp No	Exercise	Activity
1.	Identify Relationships	• Positive Relationships, Negative Relationships – Factors that affect them- Through a story
2.	Practise Rapport building	• Exercises on Rapport building • Developing Correct Body Language

9.0 Understand Creativity skills

9.1 Define Creativity

9.2 List the synonyms like Invention, Innovation and Novelty

9.3 Distinguish between Creativity , Invention, Innovation, and Novelty

9.4 Discuss the factors that lead to creative thinking like observation and imitation , improvement etc.

9.5 Distinguish between Convergent Thinking and Divergent Thinking

9.6 Explain various steps involved in Scientific approach to creative thinking namely

a) Idea generation b) Curiosity c) Imagination d) Elaboration e) Complexity

f) Abstraction and simplification g) Divergent Thinking h) Fluency

i) Flexibility j) Persistence k)Intrinsic Motivation l) Risk taking

m) Projection/empathy n) Originality o) Story telling p) Flow.

9.7 List the Factors affecting the creativity in Individuals.

9.8 Give the concept of Vertical thinking and Lateral thinking.

9.9 Explain the importance of Lateral thinking.

9.10 Compare Lateral thinking and Vertical thinking

Practicals

Exp No	Exercise	**Activity** (Games and Group work)
1	Observe any given object	• Identifying finer details in an object
2.	Imagine	• Imagining a scene • Modifying a story (introduce a twist) • Improving a product • Finding different uses for a product
3	Skills	• Making paper craft
4	Product development	• Brain storming session
5	Developing originality	• Come up with original solutions for a given problem

10.0 Understand Problem Solving and Decision Making Skills

10.1 Define a Problem

10.2 Analyze the performance problems

10.3 Categorize the problems

10.4 List the barriers to the solutions to problems.

Practicals

Exp No	Exercise	**Activity** (Brainstorming – checklist technique free association, attribute listing)
1	Gathering the facts and Data and Organizing the information.	• Information gathering and organizing • Identifying the solutions to the problem • Identifying the barriers to the solutions • Zeroing on Optimum solution
2.	Problem solving	• Games on Problem solving

11.0 Understand Assertive and Non Assertive behaviour

11.1 List the 3 types of Behaviours 1. Assertive 2. Non assertive (passive) 3. Aggressive Behaviour 4.Submissive behaiviours

11.2 Discuss the personality of a person having above behaviours

11.3 Explain the usefulness of assertive behaviour in practical situations.

11.4 Explain the role of effective communication in reflecting assertive attitude

11.5 Give examples of Assertive statements a) Assertive request b) assertive NO

11.6 Explain the importance of goal setting

11.7 Explain the method of Conflict resolution.

11.8 Discuss the methods of controlling fear and coping with criticism.

Practicals

Exp No	Exercise	**Activity** (Simulated situational act)
1	Observation of behavior	• Identifying different personality traits from the body language
2.	Practicing assertiveness	• Write statements • Reaction of individuals in a tricky situation • Facing a Mock interview • Detailing the characteristics of peers • setting goals – Games like throwing a coin in a circle • Giving a feedback on a)Successful program b) Failed project • Self disclosure
3	Skills	• Dealing with a critic • Saying NO • Dealing with an aggressive person
4	Simulation	• Role play- skit 1. Assertive statements 2. goal setting 3. self disclosure

12.0 Practise Leadership Skills

12.1 Explain the concept of leadership

12.2 List the traits of an effective leader

12.3 Distinguish between Managing and leading

12.4 List the 3 leadership styles

12.5 Compare the above styles of leadership styles

12.6 Discuss choice of leadership style

12.7 Explain the strategies to develop effective leadership.

12.8 Explain the importance of Decision making

12.9 Explain the procedure for making effective decisions.

Practicals

Exp No	Exercise	**Activity** (Games and Group work)
1	Observation	• Questionnaire
2.	Identification of a Leader	• Give a task and observe the leader • Discuss the qualities and his /her leadership style • Ask the other members to identify the leadership qualities • Reflection on the self
3	Skills	• Decision making – followed by discussion
4	Building Team spirit	• Motivation – Intrinsic and Extrinsic Training- Communication- Challenge

Competencies for Practical Exercises

S.No	Title	Competency	Key competencies
1.	Concept of life skills	• Explain need and impact of Life skills	
2.	Enhancing self esteem	• Follow the steps to build a positive self esteem	
3.	Goal setting	• Practise the effective goal setting process	
4.	Positive attitude	• Practise the steps to enhance positive attitude. • Observe the effects of peers on self and vice-versa.	Practise the steps to enhance positive attitude
5.	Managing emotions	• Practise the steps to manage emotional intelligence • Identify different types of emotions • Exercise control over Emotions	• Identify different types of emotions
6.	Stress management	• Practise stress management techniques	
7.	Time management	• Practise Time management techniques	
8.	Interpersonal skills	• Identify positive and Negative Relations	
9.	Creativity	• Lead a small group for accomplishment of a given task. • Build positive relationships.	• Build positive relationships.
10.	Problem solving and Decision making skills	• Identify the various Problem solving and Decision making skills • Make appropriate decision	• Identify the various Problem solving and Decision making skills
11.	Assertive and non Assertive behaviour	• Practise Assertive and non Assertive behavior	
12.	Leadership skills	• Exhibit Leadership skills	• Exhibit Leadership skills

COURSE CONTENT

1.0 Concept of life skills

Definition of life skills, Need and impact of life skills programme

2.0 Enhancing self esteem

Concept, Characteristics of high and low self esteem people, Advantages of high self esteem, Causes of low self esteem- Identification of behaviour patterns of low self esteem – Practice session of Questionnaire / Game -Steps to build positive self esteem – Practice session of Role play

3.0 Goal setting

Significance of goal setting,Concepts of Wish, Dream, and Goal Identify Wish, Dream, and Goal and differentiate among them. Reasons for not setting the goals, Barriers to reach goals,Identify Barriers, Effective goal setting process & Practise Effective goal setting

4.0 Positive attitude

concept effects of negative attitude,attitude of self and peers,effect of peers on self and vice-versa, steps to enhance positive attitude,strategies to enhance positive attitude

5.0 Managing emotions

Problem-definition, performance problems ,Categorize the problems, barriers to the solutions to problems.

6.0 Stress management

concept of stress, Types of stress, causes of stress, reactions of stress, coping with stress, stress relaxing techniques, changing personality and cognitive patterns

7.0 Time management

Definition, significance of various Time stealers, Time management, strategies to set priorities, steps to overcome barriers, Time-Management skills- its advantages.

8.0 Interpersonal skills

Significance of Interpersonal skills,positive relationships- Advantages, negative relationships- Disadvantages

9.0 Creativity

Definition, Invention, Innovation, Novelty,Creative Thinking , observation and imitation, improvement, Expertise, skill, and motivation, components of Creativity, Convergent Thinking and Divergent Thinking, various steps involved in Scientific approach to creative thinking namely, Factors

affecting the creativity in Individuals, Vertical Thinking and Lateral Thinking.

10.0 Problem solving and Decision making skills

Definition, performance problems –analysis, categorizing,barriers to the solutions to problems.

11.0 Assertive and non Assertive behaviour

Types of Behaviours – their characteristics, need for controlling and avoiding aggressive behaviours, making and refusing an assertive request – their evaluation, importance of goal setting, method of giving feed back.

12.0 Leadership skills

Concept , importance, Role of a Leader in an Organization, Traits of an effective leader, Managing and leading, leadership styles-their comparison, theories of leadership, strategies to develop effective leadership, importance of Decision making, concept of ethical leadership and moral development.

REFERENCE

1. Robert Nlussier, Christopher F. Achua Leadership: Theory, Application, & Skill development: Theory, Application.

WEB DESIGNING LAB PRACTICE

Subject Title	**:**	**Web Designing Lab Practice**
Subject Code	**:**	**CM - 509**
Periods per Week	**:**	**04**
Periods per Semester	**:**	**60**

LIST OF EXPERIMENTS

1. Create a HTML page that uses the tags like head, title, body etc.
2. Create a HTML page that uses frames and different presentation formats, colors.
3. Create a HTML page with a table consisting of a header, body and footer.
4. Create a HTML page with a form containing various controls.
5. Create a style sheet to set the background color, position and dimensions of a HTML element.
6. Create a simple XML file that contains student data.
7. Write JavaScript code using arithmetic operators.
8. Write JavaScript code to implement sorting.
9. Write JavaScript code that uses recursion.
10. Write JavaScript code that displays date in various formats.
11. Write PHP program using arithmetic operators.
12. Write PHP program to implement searching.
13. Write PHP program to perform various operations on a database table using functions.
14. Write a PHP program to set a cookie.

OBJECTIVES AND KEY COMPETENCIES

Exp. No.	Name of the experiment	Objectives	Key Competencies
1	Create a HTML page that uses the tags like head, title, body etc.	Create the HTML page with a title and some content in the body.	1) Identify the editor required for writing HTML 2) Add the tags with relevant content 3) Save the file 4) Open the file in a browser 5) Test the results
2	Create a HTML page that uses frames and different presentation formats, colors.	Create the HTML page with multiple frames so that content in each frame will have different format and colors.	1) Identify the tags for creating multiple frames 2) Add some content to the frames and use different formats, colors for each frame. 3) Save the file 4) Open the file in a browser 5) Test the results
3	Create a HTML page with a table consisting of a header, body and footer.	Create the HTML page with a table and that table should have a header, body and footer.	1) Identify the tags for creating the table 2) Add header, body and footer to the table. 3) Put some content in each section of table 4) Save the file 5) Open the file in a browser 6) Test the results
4	Create a HTML page with a form containing various controls.	Create the HTML page with a form and add some controls like textbox, label to the form.	1) Identify the tags to add a form and controls 2) Add the form and put some controls in it. 3) Save the file 4) Open the file in a browser 5) Test the results
5	Create a style sheet to set the background color, position and dimensions of a HTML element.	Create a style sheet which contains selectors to set the background color, position and dimensions of a HTML element.	1) Identify the editor required for creating CSS 2) Add selectors to set the background color, position and dimensions of an element. 3) Save the CSS file 4) Link the CSS file to a valid HTML page. 5) Save the HTML page 6) Open the HTML page in a browser 7) Test the results
6	Create a simple XML file that contains student data.	Create an XML file with some student information.	1) Identify the information to put in the XML file 2) Identify the editor for creating XML file 3) Add relevant tags and put the content 4) Save the XML file. 5) Open the XML file in a browser which had XML parsing capability. 6) Test the result and verify the information.
7	Write JavaScript code using arithmetic operators.	Write JavaScript code using arithmetic operators like calculation of simple interest.	1) Understand the significance of Client-side scripting. 2) Understand the process of combining JavaScript and HTML. 3) Create a HTML file. 4) Add HTML elements to read Principal, Rate of interest, Time period and to calculate Simple interest. 5) Write the logic for calculating Simple interest 6) Save the HTML file. 7) Open the HTML page in a browser 8) Test the results 9) Resolve the errors if any through debugging

8	Write JavaScript code to implement sorting.	Write JavaScript code to implement sorting like reading an array of 'n' numbers and sorting them in ascending order.	1) Create a HTML file 2) Add elements to read array and to sort. 3) Write the logic for sorting using iterative and conditional statements. 4) Save the HTML file. 5) Open the HTML page in a browser 6) Test the results 7) Resolve the errors if any through debugging
9	Write JavaScript code that uses recursion	Write JavaScript code that uses recursion like calculation of the factorial.	1) Create a HTML file 2) Add elements to read number and to calculate factorial. 3) Write the logic using recursion 4) Save the HTML file. 5) Open the HTML page in a browser 6) Test the results 7) Resolve the errors if any through debugging
10	Write JavaScript code that displays date in various formats.	Write JavaScript code that display date in various formats like DD-MM-YYYY, DD/MM/YYYY etc.	1) Create a HTML file 2) Write the logic to display date information 3) Save the HTML file. 4) Open the HTML page in a browser 5) Test the results
11	Write PHP program using arithmetic operators.	Write PHP program using arithmetic operators like calculation of radius of a circle	1) Understand the differences between server side and client side scripting. 2) Understand the process of installing PHP and requesting documents from web server. 3) Understand the process of combining PHP and HTML. 4) Create a PHP file 5) Add elements to read radius and to calculate area. 6) Write the logic using operators. 7) Save and Run the page. 8) Test the results 9) Resolve the errors if any through debugging
12	Write PHP program to implement searching.	Write PHP program to implement searching like reading an array of 'n' numbers and finding smallest among them.	1) Create a PHP file. 2) Add elements to read array and to find the smallest number. 3) Write the logic for sorting using iterative and conditional statements. 4) Save and Run the page. 5) Test the result
13	Write PHP code to perform various operations on a database table using functions.	Write PHP code to perform retrieval, insertion, modification and deletion of data in a database table using functions	1) Understand the process of connecting to database and execute commands. 2) Create a PHP file. 3) Add required elements to the page. 4) Write the logic to retrieve, insert, update and delete data in the table using functions. 5) Save and Run the page. 6) Test the result
14	Write a PHP program to set a cookie.	Write PHP code to create a cookie and put some information in it.	1) Understand the significance of cookies. 2) Create a PHP file. 3) Write the logic to create and set a cookie 4) Save and Run the page. 5) Test the result.

FIELD PRACTICES

Subject title	:	**Field Practices**
Subject code	:	**CM-510**
Periods/week	:	**07**
Periods/semester	:	**105**

Rationale:

Field practices subject is introduced as a substitute for industrial training. This course is aimed at imparting same skills a student would acquire in the industry during the initial training period. In other words, industry like environment is simulated in the institution during this course to prepare the students for industry.

TIME SCHEDULE

S.No.	Major Topics	Periods / week
1	Identification and familiarization of various components of computer system	7
2	Disassemble and Assemble a system as a whole	7
3	3.1 Installation and un-installation of various hardware devices 3.2 Video Conferencing using Skype	7
4	Installation of operating systems and other applications	7
5	Maintenance of computer system & UPS	7
6	Troubleshooting a PC	7
7	Networking – practice	7
8	Implementation of DOS commands	7
9	Debugging a program – Expect the output for a given program before execution	7
10	Selection of appropriate programming language for solving a given problem	7
11	Enhancement of programming skills	7
12	Designing a web site – Requirement gathering and Analysis	7
13	Designing a website – Design and Coding	7
14	Designing a website – Test and Debug	7
15	Practicing Software project development activities	7

Every student should do the following professional tasks on daily basis

- Monitoring the performance of system regularly
- Turnoff the systems properly
- Should follow the ethics such as usage of pen drives without prior permission, misplacing of peripherals etc.,
- Backup of hard disk on a regular basis
- Use of hard disk cleanup and defragmentation utilities regularly
- Setup weekly updates for systems
- Setup a firewall and parental controls
- Updation of antivirus and antispyware software

Objectives:

On completion of the practice the student shall be able to practice and perform/ implement at the institution/hostel/ nearby establishment along with the staff

1.0 Identification and familiarization of various components of computer system

1.1 Note down the system configuration.

1.2 Identification of various power and data cables.

1.3 Identification of mother board components.

1.4 Identification of SMPS, RAM, ROM, Processor and hard disk.

1.5 Note down the power specifications of mother board components.

1.6 Identification of different types of cards.

Networking card

Internal modem

Video graphics card

1.7 Identification of different types of cables within a computer –

IDE

SATA

PATA

USB

Ethernet cables

1.8 Identification of different types of ports within a computer –

Serial port

Parallel port

HDMI port

VGA port

PS/2 port

Games port

Different types of USB ports

Audio sockets

Ethernet port

IEC power connector

2.0 Disassemble and Assemble a system as a whole

2.1 List out all the parts inside a system in detail.

2.2 Disassemble all the parts of a system in a proper manner.

2.3 Assemble all the parts to a system as a whole.

2.4 Note down the time taken to do the above tasks and Repeat the above tasks twice..

3.0 Installation and uninstallation

3.1 Installation and un-installation of various hardware devices.

3.1.1 Modem

3.1.2 Printer

3.1.3 Scanner

3.1.4 Web Cam

3.2 Set up of video conferencing using Skype.

4.0 Installation of operating systems and other applications.

4.1 CMOS set up.

4.2 Formatting and partitioning hard drives in different formats.

4.3 Installation of Unix/Linux.

4.4 Installation of windows OS.

4.5 Creation and management of user accounts in windows XP / windows 7.

4.6 Installation of Anti-Virus Software and Removal of Virus.

5.0 Maintenance of computer system and UPS.

5.1 Installation of OS within a OS using virtual machine.

5.2 Cloning of hard disk.

5.3 Observing the operation of UPS

5.3.1 Observing the front panel of UPS.

5.3.2 Familiarization of different operating modes in UPS.

5.3.3 Record the voltage of each battery using multi-meter.

6.0 Troubleshooting a PC

6.1 Troubleshooting keyboard

6.1.1 Dead keys.

6.1.2 Keyboard doesn't work at all.

6.1.3 Continuous display of a character even after the key is released.

6.1.4 Display of wrong character.

6.2 Troubleshooting monitor

6.2.1 Adjusting the display settings.

6.2.2 Power LED does not go ON and no display.

6.2.3 Power LED is ON but no display.

6.2.4 Power LED is ON but monitor displays wrong character.

6.2.5 Rid of monitor screen flickering wavy lines.

6.3 Troubleshooting printer

6.3.1 Printer never leaves warm-up mode.

6.3.2 Paper jam message is displayed.

6.3.3 Printed data are distorted.

6.3.4 Cartridge / toner related issues.

6.3.5 DMP – print head moves back and forth but nothing prints.

6.3.6 Print self test works but printing from a computer application does not work.

6.4 Troubleshooting optical drives.

6.5 Troubleshooting LAN Problems.

6.6 Upgradation of ram and processor.

6.7 Recover of lost data on hard drive.

7.0 Networking – practice

7.1 Using crimping tool – student should be able to crimp the given UTP cable

7.2 Peer to peer connections –

7.2.1 Student should be able to connect two computer systems using a UTP cable.

7.2.2 Student should check for successful establishment of peer to peer connection.

7.2.3 Student should be able to transmit/receive a file.

7.3 LAN establishment

7.3.1 Student should be able to establish a LAN connection for a group of systems.

7.3.2 Student should be able to provide IP addresses for systems in a LAN.

7.3.3 Student should be able to connect all the systems in a LAN to the internet.

7.4 Sharing of resources through network

7.4.1 Student should be able to share a printer / scanner in a network.

7.4.2 Student should be able to share files in a network.

7.5 FTP for downloading and uploading files.

7.6 Installation and configuring proxy server.

8.0 Implementation of DOS commands in C language

8.1 Student should learn about DOS commands.

8.2 Student should develop a C program for implementing a given DOS command.

9.0 Debugging a program - Expect the output for a given program before execution

9.1 Find out the syntax and logical errors in the given program.

9.2 Correction of the code to meet the objectives of a program.

9.3 Expect the output for a given program.

10.0 Selection of appropriate programming language for solving a given problem

10.1 Student should be able to design an algorithm/flowchart for the given problem.

10.2 Student should be able to implement a program in C language.

10.3 Student should be able to implement a program in C++ language.

10.4 Student should be able to implement a program in Java language.

10.5 Student should prepare a report on time and space complexity for the programs developed in each language.

10.6 Student should be able to choose and justify the appropriate language for solving the given problem.

11.0 Enhancement of programming skills

11.1 Student should be able to analyze the given program.

11.2 Student should be able to reduce the lines of code if possible.

11.3 Student should be able to write alternate method, if any.

11.4 Student should be able to improve the efficiency of program choosing appropriate data types and data structure.

11.5 Student should give comments wherever required.

11.6 Student should prepare a report on changes made to the given program.

12.0 Designing a web site – Requirement gathering and Analysis

12.1 Student should collect the required data about the problem

12.2 Student should prepare a detailed “SRS document” and identify the functional and non-functional requirements.

12.3 Students should perform requirement validation and understand the problem.

12.4 Student should identify the data objects required for the website.

13.0 Designing a website – Design and Coding

13.1 Student should prepare a report stating the different tables to be created. and the relations to be established among them by referring to the data objects.

13.2 Student should normalize the tables and create the resultant tables in the database.

13.3 Design the work flow of web pages.

13.4 Design the layout of web pages.

13.5 Student should identify the best technology to develop the website with the given requirements.

13.6 Write code for designed web pages and provide appropriate links.

14.0 Designing a website – Test and Debug

14.1 Student should deploy the website created.

14.2 Student should connect the front end with back end.

14.3 Student should test and debug the project.

14.4 Student should prepare a report on errors encountered while implementing.

15.0 Practicing software project development activities

15.1 Interaction with client (mock drill) to collect requirements and note down the requirements of the project.

15.2 Discussion among skilled and experienced software engineers to analyze the scope of the project (preparation of scope document) (mock drill) and to recognize functional and non-functional requirements – preparation of SRS document.

15.3 Preparation of project schedule, risk analysis , task list and data flow diagrams.

15.4 Documenting internal design of software for the purpose of future maintenance.

Write the final project report and present seminar on the project.

VI SEMESTER

INDUSTRIAL MANAGEMENT & ENTREPRENEURSHIP
(Common to IT , FW)

Subject Title : INDUSTRIAL MANAGEMENT & ENTREPRENEURSHIP
Subject Code : CM-601
Periods/Week : 04
Periods/Semester : 60

Rationale: Industrial management Entrepreneurship subject is aimed at giving the concepts of Industry , its functioning and management to encourage the students to set up their own enterprise. including quality management.

TIME SCHEDULE and BLUE PRINT

Sl	Major Topics	No. of periods		Weightage of Marks	Short Answer Questions			Essay Questions		
		Theory	Practice		R	U	A	R	U	A
1	Principles of Management, Organisation structure and behaviour	10	5	26	1	1	0	1	1	0
2	Production, Materials Management, Marketing & Sales.	20	5	38	2	2	0	1	1	1
3	Introduction to ISO 9000 & T.Q.M.	8	2	26	1	1	0	1	1	0
4	Role of Entrepreneur and Entrepreneurial Development	7	3	16	1	1	0	1	0	0
	Total	**45**	**15**	**110**	**5**	**5**	**0**	**4**	**3**	**1**
				MARKS	**15**	**15**	**0**	**40**	**30**	**10**

R:Remembering type - 55 marks
U: Explaining type - 45 marks
A: Application type - 10 marks
Total marks weightage - 110

OBJECTIVES

On completion of the study of the subject a student should be able to comprehend the following:

1.0 Explain the principles of management as applied to industry.

1.1 Define industry, commerce (Trade) and business.
1.2 Discuss the need for management.
1.3 Explain the evolution of management
1.4 Explain the principles of scientific management.
1.5 Explain functions of Management.
1.6 Differentiate between management and administration.
1.7 Explain types of ownerships
1.8 Differentiate types of ownerships.
1.9 Explain salient features of joint stock companies.
1.10 Explain the philosophy and need of organisation structure of an industry.
1.11 List types of organisation structures.
1.12 Explain line organisation and its advantages and disadvantages.
1.13 Explain the line and staff organisation.
1.14 List the advantages and limitations of line and staff organisation.
1.15 Explain functional organisation and its advantages & disadvantages.
1.16 Explain organisational behaviour.
1.17 Conduct job analysis.
1.18 Assess the incurring applicants.
1.19 Outline the selection process.
1.20 Explain the sources of manpower.
1.21 State motivation theories.
1.22 Explain Maslow's theory.

2.0 Explain the different aspects of production, Materials Management and Marketing & Sales

2.1 Differentiate and integrate production, planning and control.
2.2 Relate the production department with other departments.
2.3 State the need for planning and it's advantages.

2.4 Explain the stages of Production, planning and control.

2.5 Explain routing methods.

2.6 Explain scheduling methods.

2.7 Explain dispatching.

2.8 Draw PERT/CPM networks.

2.9 Identify the critical path.

3.0 Explain the concepts of materials and Market management

3.1 Explain the role of the materials in Industry.

3.2 Derive expression for inventory control.

3.3 Explain ABC analysis.

3.4 Define safety stock.

3.5 Define reorder level.

3.6 Derive an expression for economic ordering quantity.

3.7 Study Stores layout and duties of store keeper

3.8 List various material handling equipment

3.9 Explain the concept of cost.

3.10 List out the elements of cost.

3.11 Explain the concept of contribution.

3.12 Explain break-even analysis.

3.13 Explain marketing functions. **Explain the principles of Marketing management.**

3.14 Explain Sales function.

3.15 List out market conditions.

3.16 Differentiate Sellers and Buyers' market.

3.17 Differentiate monopoly, oligarchy, and perfect competition.

3.18 Conduct market and demand surveys.

3.19 Differentiate product and production analysis.

4.0 Explain ISO 9000 & TQM.

4.1 Explain the concept of quality.

4.2 Describe the quality systems and elements of quality systems.

4.3 Discuss the principles of quality Assurance.

4.4 Discuss the Indian Standards on quality systems.

4.5 Discuss the evolution of ISO standards.

4.6 Discuss ISO standards and ISO 9000 series of quality systems.

4.7 State the constituents of ISO 9000 series of standards for quality systems.

4.8 State the outstanding features and drawbacks of ISO 9000 series of standards.

4.9 List the beneficiaries of ISO 9000.

4.10 Explain 5-S principles and ZERO DEFECT.

5.0 Explain the role of entrepreneur in economic development and in improving the quality of life.

5.1 Outline the concepts of Entrepreneurship.

5.2 Define the word entrepreneur.

5.3 Determine the role of Entrepreneurship.

5.4 Describe the profile of an entrepreneur.

5.5 Explain the requirements of an entrepreneur.

5.6 Outline the expectations of Entrepreneurship.

5.7 Determine the role of entrepreneurs in promoting Small Scale Industries.

5.8 Describe the details of current self-employment schemes.

5.9 Explain the method of product selection.

5.10 Explain the factors influencing the site selection.

5.11 Outline the methods of plant layout.

5.12 State the needs for a planned and co-ordinated effort.

5.13 State the importance of follow up.

5.14 List the financial assistance programmes.

5.15 List out the organisations that help an entrepreneur.

5.16 List features of demand survey.

5.17 List features of market survey.

COURSE CONTENTS

1. Principles of management, Organisation structure and Behaviour

Definitions of Industry, Commerce and Business. Evolution of - Types of ownership – Sole proprietorship, Partnership management theories. Principles of Scientific Management, functions of management. Difference of administration and managemen, Private limited, Public limited company, Industrial Cooperatives, Philosophy, types of Organisations, Line and Staff and functional organisations. Advantages and limitations - Effective organisation. Job analysis, Assessing applicants, selection, motivation, different theories – Maslow's theory.

2. Production, Materials Management and Marketing & Sales

Production, planning and control, relation with other departments, need for planning and advantages Routing, scheduling, despatching - PERT and CPM, - simple problems.

3. Materials in industry, inventory control model, ABC Analysis - Safety stock, re-order, level, Economic ordering quantity – Cost, Elements of Cost, Contribution, Break even analysis, Stores layout, stores equipment, Stores records, purchasing procedures, purchase records,Sellers and Buyers markets - Marketing, Sales, Market conditions, monopoly, oligarchy, perfect competition, Pricing Policies. Market Survey, Product and production.

4. Introduction to ISO 9000 and TQM.

Concept of quality discussed by B. Crosby W. Edward, Deming, Joseph M. Jura Kooru Ishikawa, Genichi Taguchi, Shigco Shingo.Quality systems – Definitions of the terms used in quality systems like, quality policy, quality management, quality systems, quality control and quality assurance.Elements quality systems : Management responsibility, Quality system, contract review, design control, document control, purchasing, purchaser – supplied product, product identification and traceability, process control, Inspection and testing.Principles of quality assurance – Definition of quality assurance.Indian standards

on quality systems – Main features of IS 13999 : 1990, IS 14000 : 1990, IS 14004 : 1990, IS 14001: 1990, IS 14002 : 1990, IS 14003: 1990.Discuss the necessity of International standards – Evolution of ISO. **5-S** principles – importance – meaning – approach – benefits Various standards under ISO – Outstanding features of ISO 9000 series of standards – ISO 9000 Phenomenon ISO 9000 series of quality systems – Constituents of ISO 9000 series of standards for quality

systems.Drawbacks of ISO 9000 series of standards, list the beneficiaries of ISO 9000 (Whom does ISO 9000 help).

5. Role of Entrepreneur & Entrepreneurial Development.

Concept, definition, role, expectation, entrepreneurship Vs Management, promotion of S.S.I. Self – employment schemes. Product selection, site selection, plant layout, profile and requirement, need for a planned and co-coordinated effort, following, Institutional support needed, Financial assistance programmes, Demand survey, Market survey.

REFERENCE BOOKS

1. Industrial Engineering and Management - by O.P Khanna
2. Production Management - by Buffa.
3. Engineering Economics and Management Science - by Banga & Sharma.
4. S.S.I Hand Book - by S.B.P. Publishers.
5. Personnel Management - by Flippo.
6. Industrial Management and Entrepreneruship - by Zakria Baig.
7. Entrepreneurship - by NITTT&R, Chennai.

ADVANCED JAVA PROGRAMMING

Subject Title : Advanced Java Programming

Subject Code : CM – 602

Periods per Week : 04

Periods per Semester : 60

Rationale:

Advanced Java Programming subject is aimed at giving the concepts of advanced Java , to encourage the students to learn new features.

TIME SCHEDULE and BLUE PRINT

S. No	Major Topics	Periods		Weightage Of Marks	Short Questions			Essay Questions		
		Theory	Practice		R	U	A	R	U	A
1.	Concepts of AWT	03	02	13	1	0	0	0	0	1
2.	Event Handling	10	08	34	0	1	2	1	1	½
3.	Servlets	10	05	26	1	1	0	0	1	1
4.	Java Database Connectivity	06	04	16	1	1	0	0	0	1
5.	Java Server Pages	06	06	21	1	0	1	0	0	1½
	Total	**35**	**25**	**110**	**4**	**3**	**3**	**1**	**2**	**5**
				MARKS	**12**	**09**	**09**	**10**	**20**	**50**

Objectives:

On completion of the study of the subject the student shall be able to comprehend the following

1. Concepts of AWT

1.1 List and discuss AWT classes

1.2 Discuss about Window fundamentals-Container .Panel. Window. Frame. Canvas

1.3 Discuss working with frame windows-

1.4 Distinguish different Graphics controls.

1.5 Discuss working with color

1.6 Discuss Working with Fonts

1.7 Explain AWT controls and handlings -labels. buttons. checkboxes. lists. scrollbars. Text fields. text area. menus. dialog boxes.

2. Event Handling

2.1 Explain the Two event handling mechanisms.

2.2 Discuss about The Delegation event model- events. event sources and event Listeners.

2.3 List and explain event Classes

2.4 Explain various sources of events.

2.5 Describe event listener interfaces.

2.6 Explain mouse and keyboard events.

2.7 Differentiate between Adapter classes. Inner classes.

3. Servlets

3.1 Explain the life cycle of a servlet.

3.2 Discuss about Java Servlet Development Kit

3.3 Create a simple servlet.

3.4 Discuss Javax.servlet package.

3.5 Working with Reading Servlet Parameters.

3.6 Handling HTTP requests and responses

4. Java Database Connectivity:

4.1 Discuss about Loading driver

4.2 Explain how to establish a connection.

4.3 Discuss how to create statement

4.4 Implement Simple Application and execution query.

4.5 Discuss about Scrollable ResultSet.

4.6 Describe various transactions.

4.7 Discuss about Advanced JDBC.

5. Java Server Pages

5.1 Explain about JSP life cycle.

5.2 Learn about JSP Scripting Elements .

5.3 Steps in JSP page execution.

5.4 Directives and Actions.

5.5 Discuss about Implicit Objects .

5.6 Analyze the steps to Develop Forms.

5.7 Discuss JavaBeans.

COURSE CONTENTS

1. Concepts of AWT:

AWT classes, Window fundamentals , working with frame windows, working with graphics, working with color, Fonts-AWT controls-labels, buttons, checkboxes, lists, scrollbars, Text fields, text area, menus, dialog boxes.

2. Event Handling

Two event handling mechanisms, The Deligation event model, event Classes, Sources of events, event listener interfacse-Handling mouse and keyboard events, Adapter classes, Inner classes.

3. Servlets

The life cycle of a servlet, Java Servlet Development Kit -create a simple servlet. Javax.servlet package, Reading Servlet Parameters, Handling HTTP requests and responses.

4. Java Database Connectivity:

Simple Application , Drivers and Connections , Statements,, ResultSet, Advanced JDBC.

5. Java Server Pages

JSP life cycle, JSP Scripting Elements , Directives and Actions, Implicit Objects , Forms, JavaBeans.

Reference Books:

01 "Programming in Java",
Sachin Malhotra, Sourab Choudary, Oxford

02 "The Complete reference Java",
Herbert Schilidt, Tata McGraw-Hill

03 Java Servlet & JSP Cookbook
by Bruce W.Perry ,O'Reilly series.

04 "Professional Java Server Programming",
Wrox

05 "Code notes for J2EE EJB, JDBC, JSP, and Servlets"
- Gregory Brill

SYSTEM ADMINISTRATION

Subject Title	:	**System Administration**
Subject Code	:	**CM – 603/ IT- 603**
Periods per Week	:	**04**
Periods per Semester	:	**60**

Rationale:

System Administration subject is aimed at giving the concepts of software administration, to encourage the students to learn new features.

TIME SCHEDULE and BLUE PRINT

S. No	Major Topics	Periods		Weightage Of Marks	Short Questions			Essay Questions		
		Theory	Practice		R	U	A	R	U	A
1.	Introduction to system administration	04	01	13	1	0	0	1	0	0
2.	Windows-2008 server environment	08	02	21	1	1	0	0	1	0.5
3.	Windows-2008 server administration	10	05	26	1	1	0	1	1	0
4.	Introduction to LINUX	06	04	16	1	1	0	1	0	0
5.	LINUX Administration	15	05	34	1	1	1	1	1	0.5
	Total	**43**	**17**	**110**	**5**	**4**	**1**	**4**	**3**	**1**
				MARKS	**15**	**12**	**03**	**40**	**30**	**10**

Objectives:

On completion of the study of the subject the student shall be able to comprehend the following

1.0 Introduction to system administration

1.1 Need for System Administration.

1.2 History of System Administration,.

1.2.1 Responsibilities of System Administrator

1.3 History of Windows and Unix/Linux

1.3.1 Comparison between Windows and Linux

1.4 Implement Hard drives partitioning

1.5 Discuss about various configurations like TCP/IP, DNS, DHCP, Domain, NetBEUI

1.6 Explain System security through firewalls, anti-virus software, passwords.

2.0 Windows-2008 server environment

2.1 Need for Windows server 2008

2.2 Different editions of windows 2008

2.3 Comparison between Windows NT and windows 2008

2.4 Comparison between various versions of Windows 2008 server

2.5 List and explain Windows 2008 Server components

2.6 List various Hardware requirements.

2.7 List Major optional services available in Windows 2008 server.

3.0 Windows-2008 server administration

3.1 Analyze the Installation & Configuration of Windows 2008 Server

3.2 Discuss User & Group Managements.

3.3 Analyze the working of Device Manager, Drivers Signing & Signature

3.4 Analyze Verification & Managing Ports.

3.5 Implement the Installing & Managing & Configuration Printers,

3.6 Discuss Disk Management Tools & Tasks,

3.7 Describe File Systems User Management.

3.8 Implementing Files and Folder NTFS & Share Permissions.

3.9 Explain Managing Servers Remotely Using Terminal Services (Remote Desktop).

3.10 Describe Remote Access and VPN Overview, Configuring & Implementing RemoteAccess Server.

3.11 Implementing & Configuring VPN.

3.12 Implementing & Configuring Active Directory Services Forest.

3.13 Implementing Server Roles, Restoring Active Directory.

4.0 Introduction to LINUX

4.1 Introduction to Linux, pre-Installation.

4.2 Analyze Installation of Linux.

4.3 Discuss Desktop Environments, Shells & their Types.

4.4 Familiarization with LINUX editors and commands

4.5 Discuss basic filtering techniques in LINUX

4.5.1 Give the working of filter commands

4.5.2 Discuss the usage of grep, egrep, fgrep.

5.0 LINUX Administration

5.1 Discuss about Managing Users and Groups

5.2 Explain the process of Managing Printers and print job.

5.3 Explain Browsers, PPP & Time Management using TCP/IP with LINUX.

5.4 Analyze the process of Configuring DHCP in LINUX

5.5 Describe Configuring DNS in LINUX.

5.6 Discuss Samba, NFS, Network Services, Proxies, Configuring Firewall.

5.7 Configuring internet access, sending mail

5.8 Configuring web server.

5.9 Describe Linux Security

5.10 Explain the process of Backup of data in Linux

COURSE CONTENTS

1. Introduction to system administration:

Introduction, System Administration, History of System Administration, System Administrator Roles, History of Windows and Unix/Linux, Hard drives (types/partitioning), Networking (TCP/IP, DNS, DHCP, Domain, NetBEUI), System Security (firewalls, anti-virus software, passwords).

2. Windows-2008 server environment:

Need for Windows 2008, Comparison between NT and windows 2008, Server Components, Hardware requirements, Optional services

3. Windows-2008 server administration:

Installation & Configuration of Windows 2008 Server, User group Management, Disk Management, Active Directory, Remote Terminal Services, Server, VPN, Restoring.

4. Introduction to LINUX:

Installation of LINUX, Desktop Environment, Linux editors and commands, filtering techniques.

5. LINUX Administration:

Managing users and groups, managing printers, configuring DHCP , DNS, Network services, Firewalls, Security, backup

Reference Books

1. "Teach Yourself MCS TCP/IP", James F. Causey, Techmedia

2. "Introduction to UNIX and LINUX ", John Muster, TMH Pubs

3. "Linux Administration : a Beginner's Guide", Wale Soyinka, McGraw Hill.

DATA COMMUNICATION

Subject Title : DATA COMMUNICATION
Subject Code : CM – 604
Periods per Week : 04
Periods per Semester : 60

Rationale:
Data Communication subject is aimed at giving the concepts of communication, to encourage the students to learn new features.

TIME SCHEDULE and BLUE PRINT

S. No	Major Topics	Periods		Weightage Of Marks	Short Questions			Essay Questions		
		Theory	Practice		R	U	A	R	U	A
1.	Basics of data communication	08	02	16	1	1	0	1	0	0
2.	Communication hardware Data	06	02	13	1	0	0	1	0	0
3.	Transmission and Media	10	02	26	1	1	0	1	1	0
4.	Signal Encoding Techniques	12	03	29	1	1	1	1	0	1
5.	Multiplexing and Switching techniques	10	05	26	1	0	1	1	1	0
	Total	**35**	**25**	**110**	**5**	**3**	**2**	**5**	**2**	**1**
				MARKS	**15**	**09**	**06**	**50**	**20**	**10**

Objectives:

On completion of the study of the subject the student shall be able to comprehend the following

1.0 Basics of data communication

1.1 Discuss information, data, need for data communication

1.2 Study about data communication model along with block diagram and basic components

1.3 Discuss about band width, communication rate, and maximum data rate of transmission media

1.4 List and explain about modes of data transmission.

1.5 Discuss about point-to-point, multipoint and broad casting communication

1.6 Differentiate point-to multipoint-non broadcasting and point-to-multipoint-broadcasting

2.0 Communication hardware Data

2.1 Differentiate adapter, modem and know their functions.

2.2 Discuss about internal modem and external modem.

2.3 Explain the working principle of modem.

2.4 Describe the operation of direct connect modem.

2.5 Discuss the operation of acoustical modem connection to the telephone line.

3.0 Transmission and Media

3.1 List the types of data representations and communication

3.2 Describe transmission Impairments.

3.3 Define Channel Capacity.

3.4 Differentiate between an analog and a digital electromagnetic signal.

3.5 List three important characteristics of a periodic signal.

3.6 How many radians are there in a complete circle of 360 degrees.

3.7 Define the relationship between the wavelength and frequency of a sine wave.

3.8 Define fundamental frequency

3.9 Differentiate the relationship between a signal's spectrum and its bandwidth.

3.10 Define attenuation.

3.11 List the key factors that affect channel capacity.

3.12 List and explain different data transmission media.

3.13 Differentiate between guided media and unguided media.

3.14 Discuss about Wireless Propagation-Line-of-Sight Transmission.

4.0 Signal Encoding Techniques

4.1 Discuss about modulation and demodulation

4.2 Define differential encoding.

4.3 Differentiate between NRZ-L and NRZI including the signals

4.4 Describe two multilevel binary digital-to-digital encoding techniques.

4.5 Analyze the modulation techniques for transforming digital-data into digital signals.

4.6 Explain modulation techniques for transforming digital-data into analog signals.

4.7 Explain modulation techniques for transforming analog-data into digital signals.

4.8 Explain modulation techniques for transforming analog-data into analog signals.

4.9 Define a parity bit.

4.10 Describe synchronous and asynchronous transmission with frame formats.

4.11 List the disadvantage of asynchronous transmission.

4.12 Discuss about types of errors

4.13 Explain error detection techniques like CRC, Parity check

4.14 Explain error correction process.

5.0 Multiplexing and Switching techniques

5.1 Define Multiplexing,

5.2 Discuss about Frequency-Division Multiplexing(FDM),

5.3 Discuss about Synchronous Time-Division Multiplexing,

5.4 Discuss about Statistical Time-Division Multiplexing.

5.5 Define upstream and downstream with respect to subscriber lines.

5.6 Discuss why is a statistical time division multiplexer more efficient than a synchronous time division multiplexer.

5.7 Discuss about switched communication network.

5.8 List and explain about switching network techniques.

5.9 List the advantages of packet switching compared to circuit switching.

5.10 Compare circuit switching and packet switching

5.11 Define frame relay.

COURSE CONTENTS

1. Basics of data communication

Define Information and data, Data communication, need of data communication. Elements of data communication model -source, transmitter, transmission media, receiver and destination. Band width and communication rate of transmission media, Calculating maximum data rate of a of transmission media. Modes of transmission- simplex, half-duplex and full-duplex, Transmission paths - point-to-point, multipoint, broad casting.

2. Communication hardware

Function of communication adapter and modem, features of internal and external modem, Operation of direct connect modem & acoustical modem connection to the telephone line.

3. Data Transmission and Media- Types of data and communications - digital and analog, serial and parallel communications, Transmission Impairments, Channel Capacity. Transmission Media-Guided Transmission Media, Wireless Transmission, Wireless Propagation-Line-of-Sight Transmission.

4. Signal Encoding Techniques- - Digital Data-Digital Signals(NRZ-L,NRZI, Bipolar-AMI, Manchester)-, Digital Data- Analog Signals(ASK,PSK,FSK and QAM), Analog Data-Digital Signals(PCM,DM), Analog Data- Analog Signals(AM,FM and PM). Digital Data Communication Techniques - Asynchronous and Synchronous Transmission, Types of Errors, Error Detection, Error Correction.

5. Multiplexing and Switching techniques -Frequency-Division Multiplexing(FDM), Synchronous Time-Division Multiplexing, Statistical Time-Division Multiplexing(TDM), Asymmetric Digital Subscriber Line. Circuit Switching Networks, Packet-Switching Principles, Frame Relay.

Reference Books:

1. Data and Computer Communications - William Stallings
2. Data and computer communications - Behrouz a. Forouzan
3. Computer netweorks - tannenbaum

.NET PROGRAMMING

Subject Title : .NET PROGRAMMING

Subject Code : CM – 605/IT-605

Periods per Week : 04

Periods per Semester : 60

Rationale:

.Net Programming subject is aimed at giving the concepts of .Net , to encourage the students to learn new features..

TIME SCHEDULE and BLUE PRINT

S. No	Major Topics	Periods		Weightage Of Marks	Short Questions			Essay Questions		
		Theory	Practice		R	U	A	R	U	A
1.	Basics of .NET Framework.	05	02	16	1	0	1	1	0	0
2.	C# Fundamentals	10	10	34	1	1	1	1	0.5	1
3.	ADO.NET	10	05	21	1	1	0	1	0.5	0
4.	Window Applications	06	04	23	0	0	1	0	1	1
5.	Web Applications	06	02	16	1	0	1	1	0	0
	Total	**37**	**23**	**110**	**4**	**2**	**4**	**4**	**2**	**2**
				MARKS	**12**	**06**	**12**	**40**	**20**	**20**

R:Remembering type -52marks

U: Explaining type -26marks

A: Application type -32 marks

Total marks weightage -110

Objectives:

On completion of the study of the subject the student shall be able to comprehend the following

1 Basics of .NET Framework.

1.1 Define .NET Framework.

1.2 List the features of .net framework.

1.3 Draw and explain CLR architecture

1.4 Discuss about frame work class Library .

1.5 Define Microsoft intermediate language

1.6 Discuss Common type system CTS, common type language CTL.

1.7 List .NET languages.

1.8 List the Advantages of .net over C, C++, Java.

1.9 Introduction to C#.NET .

1.10 Describe Integrated development environment in c#.net.

1.11 Describe C#.NET working Environment and browse through menus on the menu bar.

1.12 Explain the help system.

1.13 List the applications of .net.

2 C# Fundamentals:

2.1 Analyze variables, constants declarations and their types.

2.2 Discuss various operators.

2.3 Describe classes and objects.

2.4 Discuss user defined data types, scope of variables, life of variables.

2.5 Discuss various type conversions,

2.6 Define array and Develop small projects using Arrays .

2.7 Describe control flow statements like two directional, multi directional flow statements.

2.8 List various loop statements and explain.

2.9 Develop small projects using control flow statements.

2.10 Implement OOPs concepts.

2.11 Discuss recursion concept.

2.12 Explain Exception Handling.

2.13 Analyze debugging and execution.

3 ADO.NET.

3.1 Introduction to ADO.NET

3.2 Discuss data objects.

3.3 Describe how to connect data base to c# application through server explorer.

3.4 Explain the process of Accessing data with data adapters and data sets.

3.5 Explain Multiple Table Connection.

3.6 List the features and advantages with ADO.NET.

4 Window Applications.

4.1 Discuss the designing aspects of C#.NET windows application forms.

4.2 List the steps for creating a windows application

4.3 List various elements of user interface.

4.4 Discuss the properties of controls like text box, label , button, check box, radio button, combo box, list box, data grid.

4.5 Explain the design process of a simple form and display the messages using the above controls.

4.6 List and discuss the common properties of above controls.

4.7 Describe how to enable, disable the controls and run the applications.

4.8 Explain the steps to creation of Menus at design time using the menu design window.

4.9 Develop a project to control menus at run time.

4.10 Explain how to create short cut keys for pull down menus.

4.11 Describe common dialogue control.

4.12 Discuss about fundamentals of graphics controls like line and shape.

4.13 Explain the process of connecting database.

4.14 Describe navigating data source.

4.15 Discuss about Data Grid View,

4.16 Define Data validation.

4.17 Explain about designing and coding simple form.

4.18 Discuss about the deploying and distribution of windows application.

5 Web Applications.

5.1 Introduction to Web Forms.

5.2 Discuss the steps for creating a web application

5.3 Describe the usage of text box, label, button, check box, radio button, drop down list, list box, data grid, hyperlink, images, panel, hidden field.

5.4 Discuss about Data Grid View,

5.5 List and describe various Data validation controls.

5.6 Explain the process of passing data between two web forms.

5.7 Explain the process of designing and coding simple form.

5.8 Explain how to deploy and distribute a web application.

COURSE CONTENTS

1. Basics of .NET Framework:

Introduction to .NET Framework, Features of .net, Common Language Runtime, Framework Class Library, Name space, common type system, common language specification, execution process of . net program, JIT, MSIL, assembly, Garbage Collection, Advantages of .net over C, C++, Java. Understanding Visual Studio IDE. Know about the help system, applications of .net.

2. C# fundamentals:

Introduction to C# , Features, Advantages, data types, value type, reference type, variables, constants, operators, data type conversions, Classes & Objects, interface, Arrays & Collections , oops features, conditional statements, iterative statements, exception handling, writing C# console program, debugging and executing program.

3. ADO.NET :

Overview of ADO.NET model , Data objects : Connection Object, Command Object, Data Readers, Data Sets & Data Adapters , working

with MS-Acess and Oracle Database. Features and Advantages of ADO.NET

4. Window Applications:

Steps for creating a window application, working with various controls- text box, label , button, check box, radio button, combo box, list box, data grid, common dialog controls, creating and working with menus, distributing the windows application, database connecting, fundamentals of graphics and Graphic controls, simple designing and coding.

5. Web Applications:

Steps for creating a web application, working with various controls- text box, label , button, check box, radio button, drop down list, list box, data grid, hyperlink, images, panel, hidden field, data validation controls, passing data between two web forms, deploying and distributing a web application.

REFERENCE BOOKS:

1. Programming in C#: A Primer",Balaguruswamy, McGraw-Hill.
2. C# A Beginner's Guide",Herbert Schildt, McGraw-Hill.
3. Learning C#",Jesse Liberty and Brian MacDonald, O'Reilly
4. Pro C# and the .NET Framework",Andrew Troelsen, Apress
5. Mastering Visual C# .NET",Jason Price & Mike Gunderloy, Publisher: Wiley

CRYPTOGRAPHY AND NETWORK SECURITY

Subject Title : CRYPTOGRAPHY AND NETWORK SECURITY

Subject Code : CM – 606/ IT-606

Periods per Week : 04

Periods per Semester : 60

Rationale:

Cryptography and network security subject is aimed at giving the concepts of Security levels , to encourage the students to learn new features.

TIME SCHEDULE and BLUE PRINT

S. No	Major Topics	Periods		Weightage Of Marks	Short Questions			Essay Questions		
		Theory	Practice		R	U	A	R	U	A
1.	Introduction to Network security	08	02	21	1	1	0	1	0.5	0
2.	Classical Encryption Techniques	10	10	34	1	1	1	1	1	0.5
3.	Cryptographic integrity techniques	10	05	26	1	1	0	1	1	0
4.	System security	06	02	16	1	1	0	1	0	0
5.	Firewalls and Ethical Issues	05	02	13	1	0	0	1	0	0
	Total	**39**	**21**	**110**	**5**	**4**	**1**	**5**	**2.5**	**0.5**
				MARKS	**15**	**12**	**03**	**50**	**25**	**5**

R:Remembering type - 65 marks

U: Explaining type - 37 marks

A: Application type - 08 marks

Total marks weightage - 110

Objectives:

On completion of the study of the subject the student shell be able to comprehend the following

1. Introduction to Network security

1.1 Define security and network security.

1.2 Describe OSI security architecture.

1.3 Discuss about different security goals.

1.4 Define cryptography.

1.5 Discuss about crypto system.

1.6 Discuss about authentication, Confidentiality, integrity w.r.t data.

1.7 Differentiate passive and active security threats.

1.8 List and explain categories of passive and active security attacks.

1.9 List and explain categories of security services.

1.10 List and explain categories of security mechanisms.

1.11 Draw the Model for network security and explain.

2. Classical Encryption Techniques

2.1 Define encryption and decryption

2.2 List the essential ingredients of a symmetric cipher.

2.3 Describe two basic functions used in encryption algorithms.

2.4 List keys required for two people to communicate via a cipher.

2.5 Describe the general approaches to attacking a cipher.

2.6 Discuss the Caesar cipher.

2.7 Discuss the monoalphabetic cipher.

2.8 Describe Playfair and Hill ciphers.

2.9 Discuss One-Time-Pad.

2.10 Differentiate mono and polyalphabetic ciphers.

2.11 Discuss the problems with the one-time pad.

2.12 Define a transposition cipher.

2.13 Define steganography.

2.14 Exercise all the ciphers with examples.

3. Cryptographic integrity techniques

3.1 List the principal elements of a public-key cryptosystem.

3.2 List the roles of the public and private key.

3.3 Discuss about message authentication.

3.4 List and explain message authentication requirements.

3.5 List the message authentication functions.

3.6 Discuss about the message authentication code.

3.7 Differentiate between hash function and cryptography Hash function.

3.8 List the applications of cryptographic hash functions.

3.9 Define digital signature.

3.10 List the properties of a digital signature should have.

3.11 List the digital signature requirements.

4. System security

4.1 Discuss about Intruders, intrusion detection, password management

4.2 Discuss about malicious software like Backdoor, Logic Bomb, Trojan Horses, Mobile Code, Multiple-Threat Malware

4.3 Define virus and warm.

4.4 Discuss about Virus, Virus Nature,Virus Classification,Macro Viruses, Virus Kits,E-Mail Viruses

4.5 Discuss about Virus Countermeasures: Antivirus Approaches, Advanced Antivirus Techniques

4.6 Discuss about Morries worm, worm attacks, worm technologies, mobile phone worms,

4.7 Describe how does a worm propagate.

4.8 Discuss about worm Countermeasures

5. Firewalls and Ethical Issues

5.1 Define Firewall.

5.2 List types of firewalls.

5.3 Discuss about firewall characteristics

5.4 Analyze the importance of firewall

5.5 Discuss about cyber crime and computer crime,

5.6 Discuss the classification of computer crime based on the role that the computer plays in the criminal activity.

5.7 Explain digital rights management

5.8 List the basic conditions that must be fulfilled to claim a copyright.

5.9 Describe the principal categories of users of digital rights management systems.

COURSE CONTENTS

1. **Introduction to Network security: S**ecurity, Need of Network security, security goals, cryptography, Attacks, Mechanisms and Services, The OSI Security Architecture: Security Services, Availability Services, Security Mechanisms and Security Attacks, A model for Network Security.

2. **Classical Encryption Techniques :** Symmetric Cipher Model, Substitution Techniques : Caesar Cipher, Monoalphabetic Cipher, Playfair Cipher, Hill Cipher, Monoalphabetic cipher, One-Time Pad, Transposition Techniques, Steganography.

3. **Cryptographic integrity techniques :** Principles of Public Key Cryptosystems, Authentication Requirements, Authentication Functions, Message Authentication Codes, Discussledge on Hash Functions and Digital Signatures.

4. **System security:** Intruders**,** Intrusion Detection, Password Management, Backdoor, Logic Bomb, Trojan Horses, Mobile Code, and Multiple-Threat Malware. Viruses: The Nature of Viruses, Viruses Classification, Virus Kits, Macro Viruses, E-Mail Viruses. Virus Countermeasures: Antivirus Approaches, Advanced Antivirus Techniques. Worms: Difference between virus and worm. The Morris Worm, Worm Propagation Model, Recent Worm Attacks, State of Worm Technology, Mobile Phone Worms, Worm Countermeasures, back-up and data recovery.

5. **Firewalls and Ethical Issues :** The Need for Firewalls**,** Firewall Characteristics, Types of Firewalls and their advantages. Legal and Ethical issues: Cybercrime and Computer Crime, Ethical Issues Related to Computers and Information Systems

REFERENCE BOOKS:

1. Cryptography and Network Security: Principles and Practices,- William Stallings - Pearson Education.

2. Cryptography and Network Security –Atul Kahate : Mc Graw Hill

3. Network Security Essentials (Applications and Standards)- William Stallings, Pearson Education.

4. Cryptography and Network Security : 2nd Edition - Behrouz a. Forouzan.

5. computer networking a top-down approach- James F. kurose & Keith W. Ross, Pearson Education.

Advanced JAVA Programming LAB

Subject Title	:	**Advanced JAVA Programming LAB Practice**
Subject Code	:	**CM – 607**
Periods per Week	:	**04**
Periods per Semester	:	**60**

LIST OF EXCERCISES:

1. Menus using AWT
2. Create Applets.
3. Write a program in Java for handling Mouse events.
4. Write a program in Java for handling Keyboard events.
5. Write a program in Java to create and manipulate Text Area, Canvas, Scroll Bars, Frames
6. Exercise on database connectivity using JDBC
7. Exercise on simple servlet programs.
8. Write a java servlet program to read servlet parameters and send them into client page using HTTP requests and responses objects.
9. Server-side Scripting using Java Server Pages (JSP)
10. Web Page designing using database as a Back and JSP as front end.

Advanced Java Programming LAB		
Name of the Experiment	Objectives	Key Competencies
Exercises on AWT and Event Handling	Write a program for i. Menus using AWT ii. Simple applets iii. event handling on Mouse events iv. event handling on keyboard events	❖ Rectify syntactical errors ❖ Debug logical errors ❖ Study AWT structure ❖ Validate the memory allocation ❖ Study EVENT HANDLING in proper order
Write programs to implement Servlets	Write program for i. Creation of servlets ii. Servlet parameters.	❖ Correct syntactical errors ❖ Debug logical errors ❖ Validate whether the memory allocation is done ❖ Study servlets
Exercises on JDBC and JSP	Write a program for i. Database connectivity JDBC ii. Client side scripting using JavaScript iii. Server side scripting using JSP iv. Webpage designing	❖ Correct syntactical errors ❖ Debug logical errors ❖ Observe JDBC connectivity ❖ Accessing server from client ❖ Study JSP ❖ Layout of Web page

SYSTEM ADMINISTRATION LAB

Subject Title	:	**System Administration LAB Practice**
Subject Code	:	**CM – 608**
Periods per Week	:	**04**
Periods per Semester	:	**60**

LIST OF EXCERCISES:

1. Installing Linux/Windows-2008 server.
2. Practice on Linux commands.
3. Creating and managing user accounts in LINUX/Windows-2008 server.
4. Write and execute shell programs in Linux using numbers.
5. Write and execute shell programs in Linux using strings.
6. Write and execute shell programs in Linux using arrays.
7. Write and execute shell programme to convert lower case to upper case, to find string length, and to concatenate strings.
8. Installation of device drivers in LINUX/Windows-2008 server.
9. Configuration of DHCP in LINUX/Windows-2008 server.
10. Configuration of DNS in LINUX/Windows-2008 server.

SYSTEM ADMINISTRATION LAB

Name of the Experiment	Objectives	Key Competencies
Exercises on Installation of Windows 2008 server and Linux	Learning Software Installing of i. Windows 2008 server ii. Linux	❖ Study software installation procedures ❖ Validate whether the memory allocation done ❖ Study problems of software installation
Exercises on System Administration of Creating and managing user accounts	Write procedure for Creation of user accounts Managing user accounts	Validate whether the memory allocation is done Study System Administration manuals Discuss user accessing rights.
Exercises on Linux Shell Programming, JDBC and JSP	Write a program for i. Shell programming ii. Database connectivity JDBC iii. Client side scripting using JavaScript iv. Server side scripting using JSP v. Webpage designing	❖ Analysis of Memory availability ❖ Study the syntax of Linux shell programming commands and control statements ❖ Study the concepts of JDBC ❖ Observe JDBC connectivity Study JSP ❖ Designing a client side web page ❖ Designing a server side web page ❖ Interacting client with server

.NET Programming Lab

Subject Title : .NET Programming Lab Practice

Subject Code : CM – 609

Periods per Week : 03

Periods per Semester : 45

LIST OF EXCERCISES using C# :

1. Exercise on all basic controls in designing forms.
2. Design a calculator using appropriate commands.
3. Exercise on menus at design time and run time.
4. Exercise on modifying and deleting menu items.
5. Develop a project using arrays and control statements.
6. Develop a project using recursive concept.
7. Exercise on Line and Shape Controls.
8. Exercise on web forms using appropriate control elements.
9. Exercise on web forms using images , hyperlinks.
10. Exercise on data accessing in ADO.NET with multiple tables.

.NET Programming Lab		
Name of the Experiment	Objectives	Key Competencies
Exercises on designing forms	Learning forms of i. .NET Framework ii. Visual Studio IDE iii. Help System	❖ Study the creation of forms ❖ Validate whether the memory allocation ❖ Study the basics of IDE and help system ❖ Familiar with Framework.
Exercises on menu items	Write procedure for i. Creation of Menus ii. Managing Menus	❖ Validate whether the memory allocation is done ❖ Study of Menu items ❖ Analysis of menus at designing time and run time
Exercises on C# Programming, Graphical controls Web forms ADO.NET	Write a program for i. Using C# control statements ii. Grapical controls iii. Web Forms iv. ADO.NET	❖ Analysis of Memory availability ❖ Study the syntax of C# programming commands and control statements. ❖ Study the concepts of various line and shape controls ❖ Study data accessing in ADO.NET with multiple tables. ❖ Familiar in developing websites using web forms, images and hyperlinks. ❖ Learning data base connection to the .net application.

PROJECT WORK

Subject Title	:	**PROJECT WORK**
Subject Code	:	**CM – 610**
Periods per Week	:	**07**
Periods per Semester	:	**105**

SHOULD BE IN THE FOLLOWING AREAS:

1. SOFTWARE PROJECTS

a. Web site designing
b. Banking
c. Income tax calculation package
d. Examinations cell.
e. Student database management
f. Library management
g. Stores Management
h. Staff data management
i. Payrolls
j. Inventory Control
k. Hostel management
l. Tourism package
m. Institution management softwares
n. Anti-Virus software development.
o. Folder-locking.
p. Terminate stay resident systems.

2. HARDWARE and NETWORKING PROJECTS

a. LAN establishing
b. Using interfacing devices
c. Voice synthesizer

d. Voice recognizer
e. Printer sharer
f. ADD ON cards or any relevant

3. SOFTWARE AND HARDWARE PROJECTS

b. Using interfaces, microcontrollers. Microprocessors and PCs
c. Inter-cum
d. Assembling computer along with peripherals.
e. Traffic light controller
f. Stepper motor related
g. Lift controllers
h. Level controllers
i. Temperature controllers