

S-19 June & 6 July 2012 AC after Circulars from Circular No.84 & onwards - 15 -
DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO. ACAD / NP /S.E./B.E./Syllabi/88/2012

It is hereby notified for the information of all concerned that, the Academic Council at its meeting held on 06-07-2012 has accepted the syllabi in following Branches of **SECOND YEAR ENGINEERING** under the Faculty of Engineering & Technology as appended herewith :-

Sr. No.	Revised Syllabi
[1]	Second Year B.E. [CIVIL ENGINEERING],
[2]	Second Year B.E. [MECHANICAL / PRODUCTION ENGINEERING],
<u>[3]</u>	Second Year B.E. [COMPUTER SCIENCE ENGINEERING & I.T],
[4]	Second Year B.E. [ELECTRICAL ENGINEERING /EEP /EE /EEE],
[5]	Second Year B.E. [BIOTECHNOLOGY],
[6]	Second Year B.E. [INSTRUMENTATION],
[7]	Second Year B.E. [ELECTRONICS [EC /ECT /IE /E & C].

This is effective from the academic year 2012-2013 and onwards.

All concerned are requested to note the contents of this circular for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO. ACAD/ NP/ S.E.B.E./
2012/19033-55
A.C.S.S. I.No.81

Date:- 31-07-2012.

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Director,
Board of College and
University Development.

Copy forwarded with compliments to :-

- 1] The Principals, affiliated concerned Colleges,
Dr. Babasaheb Ambedkar Marathwada University.

Copy to :-

- 1] The Controller of Examinations,
2] The Superintendent, [Engineering Unit],
3] The Superintendent, [Eligibility Unit],
4] The Record Keeper,
Dr. Babasaheb Ambedkar Marathwada University.

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**Dr BABASAHEB AMBEDKAR
MARATHWADA UNIVERSITY,
AURANGABAD**



**Revised Structure and Syllabus of
Second Year Engineering of**

**COMPUTER SCIENCE
ENGINEERING & IT**

EFFECTIVE FROM - 2012-13 & ONWARDS

**RULES AND REGULATIONS
FOR
SECOND YEAR DEGREE COURSE IN ENGINEERING (REVISED)**

(Applicable from the Academic Year 2012- 2013)

Note:

1. All the Rules and Regulations, hereinafter specified shall be read as a whole for the purpose of interpretation.

ADMISSION

1. Admission to second year engineering shall be carried out as per the rules and regulations prescribed by the competent authority as appointed by the Government of Maharashtra and Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, from time to time.

DURATION AND COURSES OF STUDY

1. The duration of the course is four years. Each of the four academic years shall be divided into two semesters herein after referred to as the semester I and semester II in chronological order. Each semester shall comprise

Instructions 15 weeks

Preparation holiday 2 weeks or 15 days

(Includes practical exams)

2. Candidate who fails to fulfill all the requirements for the award of the degree as specified hereinafter within eight academic years from the time of admission, will forfeit his/her seat in the course and his/her admission will stand cancelled.

RULES AND REGULATION OF ATTENDANCE

1. Candidates admitted to a particular course of study are required to pursue a "Regular course of study" as prescribed by the University before they are permitted to appear for the University Examination.
2. "A regular course of study" means putting in attendance not less than 75% for individual subject.
3. a) In special cases and for sufficient causes shown, the Principal of the institute may, on the specific recommendation the Head of the Department, condone the deficiency in attendance to the extent of 15 % on medical ground subject to submission of medical certificate.

b) However, in respect of women candidates who seek condonation of attendance due to pregnancy, the Principal may condone the deficiency in attendance to the extent of 25 % (as against 15 % Condonation for other) on medical grounds subject to submission of medical certificate to this effect. Such condonation be availed twice during the entire course of study leading to degree in Engineering and Technology.

4. "Active Participation in N.C.C/N.S.S. Camps or Inter collegiate or Inter University or Inter State or International matches or debates of Educational Excursions or such other Inter University activities as approved by the authorities involving journeys outside the city in which the college is situated will not be counted as absence. However, such 'absence shall not exceed (4) weeks per semester of the total period of instructions. Such leave should not be availed more than twice during the entire course of study.
5. The attendance shall be calculated on individual papers/subjects from the date of commencement of the semester.
6. In case of the candidates who fail to put in the required attendance in a course of study, he/she shall be detained in the same class and will not be recommended to appear for the University examination.
7. A candidate detained in semester I should take readmission in next academic year as a regular student and shall have to complete all the theory and practicals as a regular student.
8. In case a candidate is detained in semester II, he/she should take admission to Semester II of next academic year and complete all the theory and practicals as a regular student of semester II
9. In case of change of syllabus the candidate even if detained in semester II should take readmission in next academic year for Semester I and II as a regular student and complete all the theory and practicals as a regular student.

SCHEME OF INSTRUCTIONS AND EXAMINATION

1. Instructions about the curriculum in the various subjects in each semester of all the four years shall be provided by the University.
2. The details of instruction period, examination schedule, vacations etc. shall be notified by the Principal of the College as per the University academic calendar
3. The medium of instruction and examination shall be English.
4. At the end of each semester, University examinations shall be held as prescribed in the respective schemes of examination.

5. The examinations prescribed may include written papers, practical and oral, tests, inspection of certified sessional work in Drawing and Laboratories and work done by students in each practical examination, along with other materials prepared or collected as part of Lab work/Project.
6. All the rules for examinations prescribed by the University from time to time shall be adhered to.
7. A candidate shall be deemed to have fully passed the Examination of a semester, if he/she secures not less than the minimum marks/grade as prescribed.
8. Institutions will be encouraged to adopt modern tools in classroom/labs to deliver the course contents.
9. Institutions will be encouraged to conduct online class tests.

O.874

The Second Year Examination in Engineering will be held in two parts S.E. semester-I and S. E. semester-II. No candidate will be admitted to S.E. semester-I examination unless he/she produce testimonials of having kept one term, for the subject under F.E. semester-I and II satisfactorily in a college of engineering affiliated to this University after passing the First year examination of engineering other examination recognized as equivalent thereto as per the admission rules to second year engineering prescribed by the Government of Maharashtra and Dr. B.A.M.University from time to time.

R.1861

- i. In case a candidate fails in one or more heads of passing at the S.E. semester-I Examination after taking that examination at the end of first term as a regular student, he/she will be allowed to appear again for only those heads of passing in which he/she has failed at his/her immediately subsequent semester-I examination.
- ii. That the marks obtained by the candidate at semester-I Examination shall be carried forward unless the candidate desires to appear for a paper in which he has failed and then gracing of marks should be done as a whole for semester-I and semester-II examination taken together.

R.1862

- a) Candidates who secure 45% or more but less than 50% marks in the aggregate and pass the examination will be declared to have passed the examination in Pass Division.
- b) Candidates who secure 50% or more but less than 60% marks in the aggregate and pass the examination will be declared to have passed the examination in Second Division.
- c) Candidates who secure 60% or more but less than 66% marks in the aggregate and pass the examination will be declared to have passed the examination in first Division.
- d) Candidates who secure 66% or more marks in the aggregate and pass the examination will be declared to have passed the examination in First Division with Distinction.
- e) For calculating the percentage for the purpose of giving weightage while awarding division in Final Examination to the students admitted to first year engineering, the maximum marks prescribed and the marks obtained by the examinee in the particular examinations shall be taken into consideration with the following weightages.

F.E. - 10%

S.E.- 10%

T.E. – 40%

B. E. – 40%

This shall be applicable for the students admitted in first year from academic year 2011-2012 onwards.

- f) In case of the students directly admitted to the second year, the weightage while awarding Division in Final Examination the maximum marks prescribed and the marks obtained by the Examinee in the particular examinations shall be taken in to consideration

S.E.- 20%

T.E. - 40%

B. E. - 40%

This shall be applicable for the students admitted in first year from academic year 2012-2013 onwards.

R.1863

In case a candidate fails in the examination but desires to appear again thereat.

- a) He may, at his option, claim exemption form appearing in the head or heads of passing in which he has passed.
- b) Such exemption, if claimed, shall cover all the heads of passing- in which it can be claimed.
- c) Such exemption, if not availed of at the immediately subsequent appearance of the candidate at the examination, shall be deemed to have lapsed.
- d) He /She may, at his option claim exemption from appearing in head or heads of passing of his choice and appear in the remaining head or head/s of passing to make-up the deficiency in the aggregate, if he has passed in all the heads of passing but has failed to secure a minimum of 45% of the aggregate marks.
- e) The Marks obtained by a candidate for such term work as separately assessed will be carried over unless fresh term work is presented by him. A candidate whose marks are thus carried over shall be eligible for a division provided he/she does not avail himself of exemption in any head of passing excepting term work.
- f) For the purpose of deciding whether a candidate claiming exemption in accordance with (a), (b), (c) above or (d) and (e) above has as required by R.260 secures 45% of the total marks obtainable in the whole examination the marks at his/ her previous examination/examination in the head or heads of passing in which he/she is exempted will be carried over. Candidates passing the examination in this manner shall not be eligible for a division or prizes or scholarships at the examination.

R.1864

RULE FOR COMBINED PASSING

- 1) To pass the examination a candidate must obtain minimum 40% of Marks in each Theory Paper & class test taken together however the candidate must obtain minimum 35% of Marks at the University theory Examination. The candidate must obtain a minimum aggregate of 45% of the total Marks obtainable at the S.E. Semester -I & II Examination taken together.

To pass a subject where there is no provision of class test, the candidate must obtain 40% of Marks in the University Examination.

Gracing should be done for the performance at University Examination or University Examination and class test taken together.

Minimum two-class tests should be conducted in a semester for the theory subject if provided. The average performance of the Two-class tests should be forwarded to the University by the college along with the term work marks.

If candidate fails to secure 40% of marks at university theory examination and class test taken together at the regular semester examination, then he/she shall have to appear for university examination from subsequent examination onwards and secure 40% of marks at university examination and earlier obtained class test marks taken together. The improved performance at the university examination should not be Considered for the Merit/Medal/Prize etc.

If the candidate remains absent for the class-test, his performance should be treated as 'Zero' Marks.

Minimum marks required for passing in term work and practical shall be 40%. If a candidate secures less than 40% in any of the term work or fails to submit term work shall be detained in the same class.

RULE FOR A T K T

For securing ATKT at Second Year Engineering Course candidate should clear (pass) as per the provision of R.1864[A] in at least 12 heads of passing out of 16 heads of passing.

R.1865

GENERAL RULES OF EXAMINATION

1. Application for permission to appear at every examination shall be made in the prescribed format accompanied by one passport size full face photograph (not profile) along with the necessary certificates and the prescribed fee, should be submitted to the Principal of the institute on or before the date fixed for this purpose.

2. When a candidate's application is found in order and he/she is eligible to appear at an Examination, the Principal of the institute is empowered to furnish him/her with a Hall-Ticket with the photograph affixed to it, enabling the candidate to appear in the Examination, and this Hall-Ticket shall have to be produced by the Candidate before he/she is admitted to the premises where the Examination is being held.

3. A Candidate who does not present himself/herself for the examination for any reason whatsoever, excepting shortage of attendance, shall not be entitled to claim refund of the whole or part of the examination fee, for subsequent Examination(s).
4. As engineering is a full time course, no candidate shall be allowed to put in attendance for a course or appear at examinations for different degrees and different faculties at one and the same time.
5. Students who have appeared once at any examination of the course need not put in fresh attendance, if they wish to reappear at the corresponding examination, notwithstanding the fact that the College may have introduced new subject. They will, however, have to appear at the examinations according to the scheme of examination and syllabi in force

R.1866**EQUIVALENCE OF THE SUBJECTS**

Whenever a course or scheme of instruction is changed in a particular year, three more examinations immediately following thereafter shall be conducted according to the old syllabi/regulations. Also candidates not appearing at the examinations or failing in them shall take the examination subsequently according to the changed syllabi/ regulations as per the equivalence of the subjects as prescribed by the University.

Proposed Coding System of Subject/Paper

Six digit code for a subject (UG course)

Batch	Year	Subject no
CED	1. First Year UG	Semester-I
MED	2. Second Year UG	1-20 Theory
EEP	3. Third Year UG	21-30 practical
ECE	4. Fourth Year UG	31-40 Service Courses
EXE	5. Fifth Year UG	41-49 Electives
ETC		Semester-II
IEX		51-70 Theory
PED		71-80 Practical
CSE		81-90 Service Courses
CTD		91-99 Electives
COE		
ITD		
EED		
EEE		
ARH		
BSH		
BTD		

Structure of syllabus of subject

Code No:	Title:
Teaching Scheme	Examination Scheme
Theory: hours/week	Class Test: Marks
Tutorial: hours/week	Theory examination: Maximum hours
Practical/ TermWork : hours/week	Theory examination: Maximum Marks
Objectives:	Practical/ Oral examination: Maximum Marks
1	
2	
3	
Unit 1:	
Unit 2:	
Unit 3:	
Unit 4:	
Unit 5:	
Unit 6:	
Text Books:	
1	
2	
Reference Books:	
1	
2	
3	
4	

Pattern of Question Paper:

The six units in the syllabus shall be divided in two equal parts i.e 3 units respectively. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B be made compulsory and should have at least eight bits of two marks out of which five to be solved
4. Two questions from remaining questions from each section A and B be asked to solve having weightage of 15 marks

For 40 marks Paper:

1. Minimum eight questions
2. Four questions in each section

3. Question no 1 from section A and Question no 5 from section B be made compulsory and should have at least five bits of two marks out of which three to be solved.
4. Two questions from remaining questions from each section be asked to solve having weightage of 7 marks.

0.95 GRACE MARKS FOR PASSING IN EACH HEAD OF PASSING (THEROY / PRACTICAL / ORAL / SESSIONAL) (EXTERNAL / INTERNAL)

The examinee shall be given the benefit of grace marks only for passing in each head of passing (Theory/practical/Oral/ Sessional) in external or Internal examination as follows:-

Head of passing	Grace Marks upto
Up to 50	2
051 to 100	3
101 to 150	4
151 to 200	5
201 to 250	6
251 to 300	7
301 to 350	8
351 to 400	9
And 401 and above	10

Provided that the benefit of such gracing marks given in different heads of passing shall not exceed 01 (one) percent of the aggregate marks in that examination.

Provided, further that the benefit of gracing of marks under this ordinance shall be applicable only if the candidate passes the entire examination of semester/year.

Provided further that this gracing is concurrent with the rules and guidelines of professional statutory bodies at the All India level such as AICTE, MCI, Bar Council, CCIM, CCIH, NCTE, UGC etc.

0.96 GRACE MARKS FOR GETTING HIGHER CLASS

A candidate who passes in all the subjects and heads of passing in the examination without the benefit of either gracing or condonation rules and whose total number of marks falls short for securing Second Class/Higher Second class of First Class by marks not more than 01 percent of the aggregate marks of that examination or up to 10 marks, whichever is less, shall be given the required marks to get the next higher class or grade as the case may be.

Provided that benefit of the above mentioned grace marks shall not be given, if the candidate fails to secure necessary passing marks in the aggregate head of passing also, if prescribed in the examination concerned.

Provided further that this gracing is concurrent with the rules and guidelines of professional statutory bodies at the All India level such as AICTE, MCI, Bar Council, CCIM, CCIH, NCTE etc.

0.97 GRACE MARKS FOR GETTING DISTINCTION IN THE SUBJECT ONLY.

A candidate who passes in all the subject/heads of passing in the examination without benefit of either gracing or condonation rules and whose total number of marks in the subject/s falls short by not more than three marks for getting distinction in the subject/s shall be given necessary grace marks up to three in maximum two subjects, subject to maximum 01(one) percent of the total marks of that head of passing whichever is more, in a given examination.

Provided that benefit of the above mentioned grace marks shall be given to the candidate only for such examination/s of which provision for distinction in a subject has been prescribed.

Provided further that this gracing is concurrent with the rules and guidelines of professional statutory bodies at the All India level such as AICTE, MCI, Bar council, CCIM, CCIH, NCTE etc.

0.98 CONDONATION

If a candidate fails in only one head of passing, having passed in all other heads of passing, his/her deficiency of marks in such head of passing may be condoned by not more than 01 percent of the aggregate marks of the examination or 10 percent of the total number of marks of the head of passing in which he/she is failing, whichever is less. However, condonation, whether in one head of passing or aggregate head of passing be restricted to maximum upto 10 marks only.

Condonation of deficiency of marks be shown in the statement of marks in the form of asterisk and ordinance number.

Provided that this condonation of marks is concurrent with the rules and guidelines of

Professional statutory bodies at the all india level such as AICTE, MCI, Bar council, CCIM, CCIH, NCTE etc.

0.106 (A) UNFAIR MEANS COMMITTED BY THE STUDENT

1. The Board of Examinations shall be the competent authority to take disciplinary action against a student for his misconduct due to his unfair means committed by him at the examination conducted by the University.
2. The Principal, of the college or Head of the recognized Institution shall be the competent authority to take disciplinary action against a student for his misconduct due to his unfair means committed by him at the examination conducted by the University, recognizedInstitution of behalf of the University.
3. Definition- Unless the context otherwise requires
 - (a) Student means and includes a person who is enrolled as such by the University/college/Institution for receiving instruction qualifying for any degree, diploma or

certificate awarded by the University. It includes ex-student and student registered as candidate (examinee) for any of the Degree, Diploma or Certificate examinations.

- (b) Unfair Means includes one or more of the following acts or omissions on the part of student/s during the examination period.
- i. Possessing unfair means material and or copying there from.
 - ii. Transcribing any unauthorized material or any other use thereof.
 - iii. Intimidating or using obscene language or threatening or use of violence against invigilator or person on duty for the conduct of examination or man-handling him/her or leaving the examination hall without permission of the supervisor or causing disturbances in any manner in the examination proceedings.
 - iv. Unauthorized communicating with other examinees or any one else inside or out side the examination hall.
 - v. Mutual/Mass copying
 - vi. Smuggling out, either blank or written or smuggling in of answer books as copying material.
 - vii. Smuggling in blank or written answer book, forging and forging signature of the Jr. Supervisor therein.
 - viii. Interfering with or counterfeiting of University/College Institution seal or answer books or office stationary used in the examination.
 - ix. Impersonation at the University/college/Institution examination.
 - x. Revealing identity in any form in the answer written or in any other part of the answer book by the student at the University or College or Institution examination.
 - xi. Or any other similar act/s omission/s which may be considered as unfair means by the competent authority.
- (c) "Unfair means relating to examination" means and includes directly or indirectly communicating or attempting to commit or threatening to commit any act or coercion, undue influence or fraud or malpractice with a view to obtaining wrongful gain to him or to any other person or causing wrongful loss to other person/s.
- (d) "Unfair means material" means and includes any material whatsoever, related to the subject of the examination, printed, typed, handwritten or otherwise on the person or on clothes, or body of the student (examinee) or on wood or other material, in any manner or in the form of chart, diagram, map or drawing or electronic aid etc. which is not allowed in the examination hall.

(e) "Possession of unfair means material by a student" means having any unauthorized material on his/her person or desk or chair or table or at any place within his/ her reach, in the examination centre and its environs or premises at any time from the commencement of the examination till its conclusion.

(f) " Student found in possession" means a student reported in writing as having been found in possession of unfair means material by Jr. Supervisor, Sr. Supervisor, member of the Vigilance committee or Examination squad or any other person authorized for this purpose in this behalf, even if the unfair means material is not produced as evidence because of its being reported as swallowed or destroyed or snatched away or otherwise taken away or spoiled by the student or by any other person acting on his behalf to such an extent that it has become illegible.

Provided that report to that effect is submitted by the Sr. Supervisor or chief Conductor or any other authorized person to the Controller of Examinations, Principal or Head of the Institutions concerned or any officer authorized in this behalf.

(g) Material related to the subject of Examination means and includes, if the material is produced as evidence any material certified as related to the subject of examination by a competent person and if the material is not produced as evidence or has become illegible for any of the reasons referred to in clause (f) above, the presumption shall be that the material did relate to the subject of the examination.

(h) "Chief Conductor", means and includes, Principal of the College concerned, or Head of the recognized institution concerned where concerned examination is being conducted and any other person duly authorized by him or person appointed as In charge of examination, by the authority competent to make appointment to such post.

4. Where the examination of the University courses are conducted by the constituent college/recognized Institute on behalf of the University, the Principal/Head of the concerned college/recognized Institution on receipt of a report regarding use of unfair means by any student at any such examination including breach of the rules laid down by the Management council or by the College/recognized institution for proper conduct of examination, shall have power at any time to institute inquiry and to punish such unfair means or breach of any of the rules by exclusion of such a student from any such examination or any University course in any college/Institution either permanently or for a specified period or by cancellation of the result of the student in the college/recognized Institution examination for which he/she appeared or by deprivation of any college/Institution scholarship or by cancellation of the award of any college/Institution prize or medal to him/her or by imposition of fine not exceeding Rs.300/- or in any two or more of the aforesaid ways.

5. During examination, examinees and other students shall be under disciplinary control of the Chief Conductors.
6. Chief Conductor/s of the examination centre shall in the case of unfair means, follow the procedure as under:-
 - (a) The student shall be called upon to surrender to the Chief Conductor, the unfair means material found in his or her possession, if any, and his/her answer-book.
 - (b) Signature of the concerned student shall be obtained on the relevant materials and list thereon. Concerned Senior Supervisor and the Chief Conductor shall also sign on all the relevant materials and documents.
 - (c) Statement of the student and his undertaking in the prescribed format and the statement of the concerned Jr. Supervisor and Sr. Supervisor shall be recorded in writing by the Chief Conductor (Appendix-III). If the student refuses to make statement or to give undertaking the concerned Sr. Supervisor and / or Chief Conductor shall record accordingly under their signature.
 - (d) Chief Conductor shall take one or more of the following decisions depending upon seriousness/gravity of the case:-
 - i) In the case of impersonation or violence, expel the concerned student from the examination and not allow him/her to appear for remaining examination.
 - ii) Obtain undertaking from the student to the effect that the decision of the concerned competent authority in his/her case shall be final and binding and allow him/ her to continue with his/ her examination.
 - iii) May report the case to the concerned Police Station as per the provision of Maharashtra Act No. XXXI 1982 – An act to provide for preventing Malpractice's at University Board and other specified examinations (Appendix-III) (Performa A& B).
 - iv) Confiscate his / her answer books, mark it as suspected unfair means case and issue him/her fresh answer books duly marked.
 - v) All the material and list of material mentioned in sub-clause (a) and the undertaking with the statement of the student and that of the Jr. Supervisor as mentioned in clause No. (b) & (c) and the answer-book/s shall be forwarded by the Chief conductor along with his report to the concerned Controller of Examinations/Principal/Head of the Institution, as the case may be, in a separate and confidential sealed envelope marked " suspected unfair means case"
 - vi) In case of unfair means of oral type, the Jr. Supervisor and the Sr. Supervisor or concerned authorized person shall record the facts in writing and shall report the same to the concerned Controller of Examinations/Principal/Head of the Institutions, as the case may be.

PUNISHMENT

The competent authority concerned i.e. the Board of Examinations in the case of University examination, the concerned Principal in the case of college examinations held by the recognized Institutions, after

taking into consideration the report of the committee shall pass such orders as it deem fit including granting the student benefit of doubt, issuing warning or exonerating him/her from the charges and shall impose any one or more of the following punishment on the student/s found guilty of using unfair means:-

- (a) Annulment of performance of the student in full or in part in the examination he/she has appeared for.
- (b) Debarring student from appearing for any examination of the University or college Institution for a stipulated period not exceeding five year.
- (c) Debarring student from appearing for any examination of the University or college Institution for a stipulated period not exceeding five year.
- (d) Cancellation of the University or College or Institution scholarship/s or award/s prize or medal etc. awarded to him/her in that examination.
- (e) In addition to the above mentioned punishment, the competent authority may impose a fine not exceeding Rs.300/- on the student declared guilty. If the student concerned fails to pay the fine within a stipulated period, the competent authority may impose on such a student additional punishment/penalty as it may deem fit.
- (f) The student concerned be informed of the punishment finally imposed on him/her in writing by the competent authority or by the officer authorized by it in this behalf, under intimation to the College/Institution he/ she belongs to.
- (g) An appeal against the findings of the committee shall lie with the concerned competent authority whose decision shall be final and binding.
- (h) An appeal made in writing within a period of 30 days from the date imposition of the punishment shall be considered by the competent authority on merit and shall be decided on the basis of the evidence available in the case and shall be heard in person in deserving cases, if the competent authority finds substance in the appeal, the competent authority shall supply a typed copy of the relevant extract of fact-finding report of the inquiry committee, as well as documents relied upon (if not strictly confidential). Decision in the appeal shall be informed to the student concerned accordingly.
- (i) The court matters in respect of the unfair means cases should be dealt with by the respective competent authority.

(j) As far as possible the quantum of punishment should be as prescribed (Category-wise in Appendix-I)

APPENDIX-I

THE BROAD CATEGORIES OF UNFAIR MEANS ADOPTED BY STUDENTS AT THE UNIVERSITY/ COLLEGE/ INSTITUTION EXAMINATION AND THE QUANTUM OF PUNISHMENT FOR EACH CATEGORY THEREOF.

Sr. No.	Nature of Malpractices	Quantum of Punishment
1.	Possession of copying material	(Note:- This quantum of punishment Shall apply also to the following categories of malpractices at Sr. No. 2, to Sr. No.12 in addition to the Punishment prescribed thereat)
2.	Actual copying from the copying material	Exclusion of the student from university or College or Institution examination for one additional examination.
3.	Possession of another students Answer Book	Exclusion of the student from University or College or Intuition examination for one additional examination (Both the students)
4.	Possession of another students Answer book+ actual evidence of Copying	Exclusion of the student from University or College or Institution examination for two additional examination (Both the Students)
5.	Mutual / Mass copying.	Exclusion of the student from University or College or Institution examination for two additional examinations.
6 (a)	Smuggling out or smuggling in of Answer book as copying material.	Exclusion of the student from University or College or Institution examination for two additional examinations.
(b)	Smuggling in of written answer book based on the question paper set at the examination	Exclusion of the student from University or College or Institution examination for three additional examinations
(c)	(c) Smuggling in of written answer book and forging signature of Jt. Supervisor thereon	Exclusion of the student from University or College or Institution. Examination for four additional examinations.

7.	Attempt to forge the signature of the Jr. Supervisor on the answer book or Supplement.	Exclusion of the student from the University or College or Institution examination for four additional examinations.
8	Interfering with or counterfeiting of University / College/ Institution seal or Answer books or office stationary used in the examination	Exclusion of the student from University or College or Institution examination for four additional examinations.
9.	Answer book main or supplement written outside the examination hall or any other insertion in answer book.	Exclusion of the student from University or College or Institution examination for four additional examinations.
10.	Insertion of currency notes/to bribe or attempting to bribe any of the persons/s connected with the conduct of Examination	Exclusion of the student from University or College or Institution Examination for four additional examinations. (Note:- This money shall be created to the Vice-Chancellor's Fund)
11.	Using obscene language/violence/ threat at the examination centre by a student at the University/ College / Institution Examination to Jr./ Sr. Supervisor/ Chief Conductor or Examiners.	Exclusion of the student from University or College or Institution examination for four additional Examinations.
12.(a)	Impersonation at the University/ College / Institution examination	Exclusion of the Student from University or College or Institution examination for five additional examinations, (Both the students if impersonator is University or College or Institute student)
(b)	Impersonation by a University/ College/ Institute student at S.S.C./ H.S.C./ any other Examinations.	Exclusion of the Student from University or College or Institution examination for five additional examinations
13.	Revealing identity in any form in the answer written or in any other part of the Answer book by the student at the University or College or Institution Examination	Annulment of the performance of the student at the University or College or Institution Examination in full.
14.	Student found having written on palms or on the Body, or on the clothes while in the	Annulment of the performance of the student at University or College or

	Examination	Institution Examination in full.
15.	All other mal-practices not covered in the aforesaid categories.	Annulment of the performance of the student at the University or college or Institution Examination in full and severe punishment depending upon the gravity or the offence.
16.	If on previous occasion a disciplinary action was taken against a student for malpractice used at examination and he/she is caught 'again for malpractices used at the examinations, in this event he/she shall be dealt with severely. Enhanced punishment can be imposed on such student. This enhanced punishment may extend to double the punishment provided for the offence when committed at the second or subsequent examination.	
17.	PRACTICAL/DISSERTATION/PROJECT REPORT EXAMS.	
	Student involved in malpractices at practical/ dissertation/ project report examination shall be dealt with as per the punishment provided for the theory examination.	
18.	The competent authority in addition to the above mentioned punishments may impose a fine not exceeding Rs. 300/- on the student declared guilty.	
	Note:- The term annulment of performance in full' includes performance of the student of the theory as well as annual practical examination, but does not include performance at term work, project work and dissertation examination unless malpractice used thereat.	

FACULTY OF ENGINEERING AND TECHNOLOGY
Proposed Revised Structure
[Second Year CSE/IT]
With effective from 2012-13

Sub No.	SEMESTER-I	Contact Hrs / Week					Examination Scheme					Duration of Theory Examination
		L	T	P	Total	CT	TH	T W	PR	Total		
BSH-201	Engineering Mathematics-III	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-202	Digital Electronics	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-203	Data Structures using C	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-204	Computer Networks-I	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-205	Unix and Shell Programming	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-221	LAB-I Digital Electronics Lab	-	-	2	2	-	-	50	-	50	---	
CSE-222	LAB-II Data Structure using C	-	-	2	2	-	-	-	50	50	---	
CSE-223	LAB-III Computer Network-I Lab	-	-	2	2	-	-	50	-	50		
CSE-224	LAB-IV Unix and Shell Programming	-	-	2	2	-	-	-	50	50	---	
CSE-225	LAB-V Introduction to Web Programming	2	-	2	4	-	-	-	50	50	---	
	Total	22		10	32	100	400	100	150	750		

Sub No.	SEMESTER-II	Contact Hrs / Week					Examination Scheme					Duration of Theory Examination
		L	T	P	Total	CT	TH	T W	PR	Total		
BSH-252	Engineering Mathematics-IV	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-253	Discrete Mathematics	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-254	Object Oriented Programming with C++	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-255	Microprocessors	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-256	Computer Graphics	4	-	-	4	20	80	-	-	100	3 Hrs	
CSE-271	LAB-VI Object Oriented Programming with C++ Lab	-	-	2	2	-	-	-	50	50	---	
CSE-272	LAB-VII Microprocessors Lab	-	-	2	2	-	-	-	50	50	---	
CSE-273	Lab-VIII Computer Graphics Lab	-	-	2	2	-	-	50	-	50	---	
CSE-274	LAB-IX Open Source Lab	2	-	2	4	-	-	-	50	50	---	
BSH-275	Communication Skills	2	-	2	4	-	-	50	-	50		
	Total	24		10	34	100	400	100	150	750		

L: Lecture hours per week T: Tutorial hours per week P: Practical hours per week CT: Class Test

TH: University Theory Examination TW: Term Work PR: Practical/Oral Examination

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-I

BSH-201: Engineering Mathematics-III

Teaching Scheme	Examination Scheme
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Lectures	4 Hrs/week Theory	80 Marks
	Class Test	20 Marks
	Duration of Theory paper	3Hrs

Objectives:

1. To develop Logical understanding of the subject
2. To develop mathematical skill so that students are able to apply mathematical methods & Principal's in solving problems from Engineering fields
3. To produce graduates with mathematical knowledge & computational skill.

Unit 1: [6 Hours]

Linear Differential Equations : Linear Differential Equations with constant coefficients General method, shortcut methods to find particular integral, Homogenous Linear differential equations (Cauchy's & Legendre's form), method of variation of parameters.

Unit 2: [6 Hours]

Application of LDE: To Electrical circuits & to Mechanical system (Analogous study of two systems), To Civil Engineering, Free oscillations / vibrations, Forced oscillation / vibrations, Damped Free oscillations / vibrations, Damped Forced oscillations / vibrations.

Unit 3: [8 Hours]

Statistics & Probability: Measures of Dispersion, Moments, coefficient of skewness and Kurtosis, Probability distribution for random variables, Binomial, Poisson and Normal distributions, Curve fitting: Principle of least squares, Fitting of linear curve, parabola, exponential curve.

Unit4: [6 Hours]

Vector Differentiation: Differentiation of vectors, Gradient of scalar point function, Directional derivative, Divergence of vector point function, Curl of a vector point function. Irrotational and solenoidal vector field.

Unit 5: [6 Hours]

Vector Calculus (Integral calculus): The line integral, Surface integral, volume integral, Gauss Divergence theorem, Stoke's theorem, Green's theorem

Unit 6: [8 Hours]

Numerical Methods: Solution of transdental equations by Newton Raphson method, Gauss Seidel method to solve simultaneous linear equations, Lagranges Interpolation formula for unequal intervals, Numerical Differentiation: - Newton's forward and Newton's Backward difference formulae, Solution of ordinary differential equation by Euler's modified method, and Runge-Kutta IVth order method.

Note: All Theorems are without proofs

Section A: Unit 1, 2, 3

Section B: Unit 4, 5, 6

Reference Books:

1. P. N. Wartikar and J. N. Wartikar, "A Text Book of Engineering Mathematics (Volume-I, II, III)," Pune Vidyarthi Griha Prakashan, Pune.
2. B. S. Grewal, "Higher Engineering Mathematics," Khanna Publications, New Delhi.
3. H.K. Das, "Advanced Engineering Mathematics," S. Chand & Company.
4. B.V. Ramana, "Higher Engineering Mathematics," (Tata McGraw-Hill).
5. Erwin Kreyszig, "Advanced Engineering Mathematics," Wiley Eastern Ltd.
6. Ravish R Singh, Mukul Bhat, "Engineering Mathematics," A Tutorial Approach. Mc Graw Hill

Pattern of Question Paper:

The units in the syllabus shall be divided in two equal sections. Question paper shall be set having two sections A and B. Section A questions shall be set on first three units (1,2,3) and Section B questions on remaining three units (4,5,6). Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 and 6 be made compulsory and should have at least ten bits of two marks out of which FIVE to be solved.
4. Two questions from remaining questions from each section be asked to solve having weightage of 15 marks

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,**AURANGABAD****FACULTY OF ENGINEERING AND TECHNOLOGY****Second Year Engineering****Semester-I****CSE-202: DIGITAL ELECTRONICS**

Teaching Scheme	Examination Scheme		
Lectures	4 Hrs/week	Theory Class Test Duration of Theory paper	80 Marks 20 Marks 3Hrs

Objectives:

- To understand different methods used for the simplification of Boolean functions
- To design and implement combinational circuits
- To design and implement synchronous sequential circuits
- To design and implement asynchronous sequential circuits

UNIT – 1 **5 Hours**

Digital Principles, Digital Logic: Definitions for Digital Signals, Digital Waveforms, Digital Logic, 7400 TTL Series, TTL Parameters The Basic Gates: NOT, OR, AND, Universal Logic Gates: NOR, NAND, Positive and Negative Logic, Introduction to HDL.

UNIT – 2 **5 Hours**

Combinational Logic Circuits Sum-of-Products Method, Truth Table to Karnaugh Map, Pairs Quads, and Octets, Karnaugh Simplifications, Don't-care Conditions, Product-of-sums Method, Product-of-sums simplifications, Simplification by Quine-McClusky Method, Hazards and Hazard Covers, HDL Implementation Models.

UNIT – 3 **10 Hours**

Data-Processing Circuits: Multiplexers, Demultiplexers, 1-of-16 Decoder, Encoders, Exclusive-or Gates, Parity Generators and Checkers, Magnitude Comparator, Programmable Array Logic, Programmable Logic Arrays, HDL Implementation of Data Processing Circuits

Clocks, Flip-Flops: Clock Waveforms, TTL Clock, Schmitt Trigger, Clocked D FLIP-FLOP, Edge-triggered D FLIP-FLOP, Edge-triggered JK FLIP-FLOP, FLIP-FLOP Timing, JK Master-slave FLIP-FLOP, Switch Contact Bounce Circuits, Various Representation of FLIP-FLOPs, Analysis of Sequential Circuits, HDL Implementation of FLIP-FLOP

UNIT – 4 **6 Hours**
Registers: Types of Registers, Serial In - Serial Out, Serial In - Parallel out, Parallel In - Serial Out, Parallel In - Parallel Out, Universal Shift Register, Applications of Shift Registers, Register Implementation in HDL.

UNIT – 5 **6 Hours**
Counters: Asynchronous Counters, Decoding Gates, Synchronous Counters, Changing the Counter Modulus, Decade Counters, Presettable Counters, Counter Design as a Synthesis problem, A Digital Clock, Counter Design using HDL

UNIT – 6 **8 Hours**
D/A Conversion and A/D Conversion: Variable, Resistor Networks, Binary Ladders, D/A Converters, D/A Accuracy and Resolution, A/D Converter-Simultaneous Conversion, A/D Converter-Counter Method, Continuous A/D Conversion, A/D Techniques, Dual-slope A/D Conversion, A/D Accuracy and Resolution

Text Book:

1. Donald P Leach, Albert Paul Malvino & Goutam Saha, "*Digital Principles and Applications*," 7th Edition, Tata McGraw Hill, 2010.

Reference Books:

1. Stephen Brown, Zvonko Vranesic, "*Fundamentals of Digital Logic Design with VHDL*," 2nd Edition, Tata McGraw Hill, 2005.
2. R D Sudhaker Samuel, *Illustrative Approach to Logic Design*, Sanguine-Pearson, 2010.
3. Charles H. Roth, *Fundamentals of Logic Design*, Jr., 5th Edition, Cengage Learning, 2004.
4. Ronald J. Tocci, Neal S. Widmer, Gregory L. Moss "*Digital Systems Principles and Applications*," 10th Edition, Pearson Education, 2007.
M Morris Mano: *Digital Logic and Computer Design*, 10th Edition, Pearson Education, 2008.

Section A: Unit 1, 2, 3**Section B: Unit 4, 5, 6****PATTERN OF QUESTION PAPER:**

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
4. Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks.

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-I

CSE-203: DATA STRUCTURE USING C

Teaching Scheme	Examination Scheme		
Lectures	4 Hrs/week	Theory Class Test	80 Marks 20 Marks
		Duration of Theory paper	3Hrs

Objective:

- To study the representation, implementation and applications of data structures

UNIT - 1 **6 Hours**

BASIC CONCEPTS: Pointers and Dynamic Memory Allocation, Algorithm Specification, Data Abstraction, Performance Analysis, Performance Measurement

UNIT - 2 **4 Hours**

ARRAYS and STRUCTURES: Arrays, Dynamically Allocated Arrays, Structures and Unions, Polynomials, Sparse Matrices, Representation of Multidimensional Arrays

UNIT - 3 **10 Hours**

STACKS AND QUEUES: Stacks, Stacks Using Dynamic Arrays, Queues, Circular Queues Using Dynamic Arrays, Evaluation of Expressions, Multiple Stacks and Queues.

LINKED LISTS: Singly Linked lists and Chains, Representing Chains in C, Linked Stacks and Queues, Polynomials, Additional List operations, Sparse Matrices, Doubly Linked Lists

UNIT - 4 **10 Hours**

TREES-1: Introduction, Binary Trees, Binary Tree Traversals, Threaded Binary Trees, Heap

TREES -2, GRAPHS: Binary Search Trees, Selection Trees, Forests, Representation of Disjoint Sets, Counting Binary Trees, The Graph Abstract Data Type.

UNIT - 5 **5 Hours**

PRIORITY QUEUES Single- and Double-Ended Priority Queues, Leftist Trees, Binomial Heaps, Fibonacci Heaps, Pairing Heaps.

UNIT-6**5 Hours**

EFFICIENT BINARY SEARCH TREES: Optimal Binary Search Trees, AVL Trees, Red-Black Trees, Splay Trees.

Text Book:

1. Horowitz, Sahni, Anderson-Freed, "Fundamentals of Data Structures in C," 2nd Edition, Universities Press, 2007.(Chapters 1, 2.1 to 2.6, 3, 4, 5.1 to 5.3, 5.5 to 5.11, 6.1, 9.1 to 9.5,10)

Reference Books:

1. Yedidyah, Augenstein, Tannenbaum, "Data Structures Using C and C++," 2nd Edition, Pearson Education, 2003.
2. Debasis Samanta, "Classic Data Structures, 2nd Edition," PHI, 2009.
3. Richard F. Gilberg and Behrouz A. Forouzan, "Data Structures A Pseudocode Approach with C," Cengage Learning, 2005.

Section A: Unit 1, 2, 3**Section B: Unit 4, 5, 6****PATTERN OF QUESTION PAPER:**

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
4. Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks.

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-I

CSE-204: COMPUTER NETWORKS-I

Teaching Scheme		Examination Scheme		
Lectures	4 Hrs/week	Theory Class Test Duration of Theory paper	80 Marks 20 Marks 03 Hrs	

Unit-1:

[5 Hours]

Introduction: Data Communications, Networks, the Internet, Protocols & Standards, Layered Tasks,
The OSI model, Layers in OSI model, TCP/IP Protocol suite, addressing

Unit 2:

[5 Hours]

Physical Layer-1: Analog & Digital Signals, Transmission Impairment, Data Rate limits, Performance, Digital-digital conversion (Only Line coding: Polar, Bipolar and Manchester coding), Analog-to-digital conversion (only PCM), Transmission Modes, Digital-to-analog conversion

Unit 3:

[10 Hours]

Physical Layer-2 and Switching: Multiplexing, Spread Spectrum, Introduction to switching, Circuit Switched Networks, Datagram Networks, Virtual Circuit Networks

Data Link Layer-1: Error Detection & Correction: Introduction, Block coding, linear block codes, cyclic codes, Checksum.

Unit 4:

[10 hours]

Data Link Layer-2: Framing, Flow and Error Control, Protocols, Noiseless Channels, Noisy channels, HDLC, PPP (Framing, Transition phases only)

Multiple Access & Ethernet: Random access, Controlled Access, Channelization, Ethernet: IEEE standards, Standard Ethernet, Changes in the standard, Fast Ethernet, Gigabit Ethernet

Unit 5:

[5 hours]

Wireless LANs and Cellular Networks: Introduction, IEEE 802.11, Bluetooth, Connecting devices, Cellular Telephony

Unit 6:

[5 hours]

Network Layer: Introduction, Logical addressing, IPv4 addresses, IPv6 addresses, Internetworking basics, IPv4, IPv6, Comparison of IPv4 and IPv6 Headers

Text Books:

1. Behrouz A. Forouzan: *Data Communication and Networking*, 4th Edition Tata McGraw-Hill, 2006.
(Chapters 1.1 to 1.4, 2.1 to 2.5, 3.1 To 3.6, 4.1 to 4.3, 5.1, 6.1, 6.2, 8.1 to 8.3, 10.1 to 10.5, 11.1 to 11.7, 12.1 to 12.3, 13.1 to 13.5, 14.1, 14.2, 15.1, 16.1, 19.1, 19.2, 20.1 to 20.3)

Reference Books:

1. Alberto Leon-Garcia and Indra Widjaja: *Communication Networks - Fundamental Concepts and Key architectures*, 2nd Edition Tata McGraw-Hill, 2004.
2. William Stallings: *Data and Computer Communication*, 8th Edition, Pearson Education, 2007.
3. Larry L. Peterson and Bruce S. Davie: *Computer Networks – A Systems Approach*, 4th Edition, Elsevier, 2007.
4. Nader F. Mir: *Computer and Communication Networks*, Pearson Education, 2007.

Section A: Unit 1, 2, 3**Section B: Unit 4, 5, 6****PATTERN OF QUESTION PAPER:**

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
4. Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks.

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-I

CSE-205: UNIX AND SHELL PROGRAMMING

Teaching Scheme	Examination Scheme		
Lectures	4 Hrs/week	Theory	80 Marks
		Class Test	20 Marks
		Duration of Theory paper	3Hrs

[6 hours]

Unit-1:

The Unix Operating System, The UNIX architecture and Command Usage,
The File System

[6 Hours]

Unit-2:

Basic File Attributes, the VI Editor, More file attributes,

[8 Hours]

Unit 3:

The Shell, The Process, Customizing the environment

[8 Hours]

Unit 4:

Simple filters, filters using regular expressions, awk – An Advanced Filter

[6 Hours]

Unit-5:

Essential Shell Programming

[6 Hour]

Unit 6:

perl - The Master Manipulator

Text Book:

1. Sumitabha Das: *UNIX – Concepts and Applications*, 4th Edition, Tata McGraw Hill, 2006. (Chapters 1.2, 2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19)

Reference Books:

1. Behrouz A. Forouzan and Richard F. Gilberg: *UNIX and Shell Programming*, Cengage Learning, 2005.
2. M.G. Venkateshmurthy: *UNIX & Shell Programming*, Pearson Education, 2005.

Section A: Unit 1, 2, 3

Section B: Unit 4, 5, 6

PATTERN OF QUESTION PAPER:

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
4. Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks.

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,**AURANGABAD****FACULTY OF ENGINEERING AND TECHNOLOGY****Second Year Engineering****Semester-I****CSE-221: LAB-I: DIGITAL ELECTRONICS LABORATORY****Teaching Scheme**

Practical: 2 Hrs/week

Examination Scheme

Term Work: 50 Marks

Term Work:

Term work shall consists of record of the experiments carried out during the course, which should include neat labeled figures and appropriate explanation for the corresponding experiment indicating what is learnt from the experiment. The term work shall consist of at least 10 experiments.

Assessment of term work should be done as follows:

- * Continuous lab assessment: 40 %
- * Actually performing practical in the laboratory: 40 %
- * Oral Examination conducted (internally) at the time of submission: 20%

LIST OF EXPERIMENTS

1. Given a 4-variable logic expression, simplify it using Entered Variable Map and realize the simplified logic expression using 8:1 multiplexer IC.
2. Design and develop the Verilog /VHDL code for an 8:1 multiplexer. Simulate and verify its working.
3. Realize a J-K Master / Slave Flip-Flop using NAND gates and verify its truth table.
4. Design and develop the Verilog / VHDL code for D Flip-Flop with positive-edge triggering. Simulate and verify its working.
5. Design and implement a mod-n ($n < 8$) synchronous up counter using J-K Flip-Flop ICs and demonstrate its working.
6. Design and develop the Verilog / VHDL code for mod-8 up counter. Simulate and verify its working.
7. Design and implement a ring counter using 4-bit shift register and demonstrate its working.
8. Design and develop the Verilog / VHDL code for switched tail counter. Simulate and verify its working.
9. Design and implement an asynchronous counter using decade counter IC to count up from 0 to n ($n \leq 9$) and demonstrate its working.
10. Study & verification of operation of half and full Adder.

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,

AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-I

CSE-222: LAB-II: DATASTRUCTURE USING C LABORATORY

Teaching Scheme

Practical: 2 Hrs/week

Examination Scheme

Practical & Oral: 50 Marks

Design, develop and implement for the following problems using C Language in LINUX /Windows environment

1. Write a C program to implement stack using dynamic array.
2. Write a C program to implement 2 stacks in one static array.
3. Using circular representation for a polynomial, design, develop, and execute a program in C to accept two polynomials, add them, and then print the resulting polynomial.
4. Design, develop, and execute a program in C to convert a given valid parenthesized infix arithmetic expression to postfix expression and then to print both the expressions. The expression consists of single character operands and the binary operators + (plus), - (minus), * (multiply) and / (divide).
5. Design, develop, and execute a program in C to evaluate a valid postfix expression using stack. Assume that the postfix expression is read as a single line consisting of non-negative single digit operands and binary arithmetic operators. The arithmetic operators are + (add), - (subtract), * (multiply) and / (divide).
6. Design, develop, and execute a program in C to simulate the working of a queue of integers using an array. Provide the following operations:
 - a. Insert
 - b. Delete
 - c. Display
7. Design, develop, and execute a program in C to read a sparse matrix of integer values and to search the sparse matrix for an element specified by the user. Print the result of the search appropriately. Use the triple <row, column, value> to represent an element in the sparse matrix
8. Design, develop, and execute a program in C to create a max heap of integers by accepting one element at a time and by inserting it immediately in to the heap. Use the array representation for the heap. Display the array at the end of insertion phase.

9. Design, develop, and execute a program in C to implement a doubly linked list where each node consists of integers. The program should support the following operations:
 - a. Create a doubly linked list by adding each node at the front.
 - b. Insert a new node to the left of the node whose key value is read as an input.
 - c. Delete the node of a given data if it is found, otherwise display appropriate message.
 - d. Display the contents of the list.

(Note: Only either (a,b and d) or (a, c and d) may be asked in the examination)

10. Write a C program to construct binary tree & binary tree traversal.

11. Write a C program to construct binary search tree.

Practical Examination:

Practical Examination should be conducted for three hours under the supervision of external examiner. External examiner should evaluate student by practically and orally.

Note: In the examination each student picks one question from a lot of all the 11 question

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-I

CSE-223: LAB-III: COMPUTER NETWORKS-I LABORATORY

Teaching Scheme

Practical: 2 Hrs/week

Examination Scheme

Term Work: 50 Marks

Term Work:

Term work shall consists of record of the experiments carried out during the course, which should include appropriate explanation for the corresponding experiment indicating what is learnt from the experiment. The term work shall consist of at least 10 experiments

Assessment of term work should be done as follows:

- * Continuous lab assessment: 40 %
- * Actually performing practical in the laboratory: 40 %
- * Oral Examination conducted (internally) at the time of submission: 20

LIST OF EXPERIMENTS

1. Study of Data Communication and Networking. Identify five components of Data communication system.
2. Study of computer network topology and OSI model layered architecture.
3. Installation of TC/IP protocol configuration and study the classification of addresses employing TCP/IP protocols.
4. Write a C program to determine if the IP address is in Class A, B, C, D, or E.
5. Write a C program to translate dotted decimal IP address into 32 bit address.
6. Study of basic network commands: ipconfig, hostname, ping <ip_address>, tracert <ip_address>, netstat<ip_address> etc..
7. To establish a straight over and a cross over cable in LAN
8. Study of Digital-Digital Conversion and Analog-Digital Conversion
9. Study of multiplexing and switching.
10. Write a C program to generate Hamming code.
11. Study of IEEE Standards
12. Study of IEEE 802.11 wireless standard
13. Study of IPv4 and IPv6

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-I

CSE 224: LAB-IV: UNIX AND SHELL PROGRAMMING LABORATORY

Teaching Scheme Examination Scheme

Practical: 2 Hrs/week

Practical/Oral: 50 Marks

LIST OF EXPERIMENTS

1. Execution of various file/directory handling commands.
2. Simple shell script for basic arithmetic and logical calculations.
3. Shell scripts to check various attributes of files and directories.
4. Shell scripts to perform various operations on given strings.
5. Shell scripts to explore system variables such as PATH, HOME etc.
6. Shell scripts to check and list attributes of processes.
7. Execution of various system administrative commands.
8. Write awk script that uses all of its features.
9. Use sed instruction to process /etc/password file.
10. Write a shell script to display list of users currently logged in.
11. Write a shell script to delete all the temporary files.
12. Write a shell script to search an element from an array using binary searching.

Practical Examination:

Practical Examination should be conducted for three hour under the supervision of external examiner. External examiner should evaluate student by practically and orally.

Note: In the examination each student picks one question from a lot of all the 12 question

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-I

CSE 225: LAB-V: INTRODUCTION TO WEB PROGRAMMING

Teaching Scheme

Practical: 2 Hrs/week
Theory: 2 Hrs/week

Examination Scheme

Practical/Oral: 50 Marks

Contents

1. **Introduction to web design:** Web page & web site, Web Publishing. Introduction to HTML: Structure tags: <html>, <head>, <title>, <body> Block level tags: Headings, Paragraph, Comments, Breaks, Center, Division, Preformatted, Text alignment and font size. Text level tags: Bold, Italic, Underlined, Strike-through, superscript, subscript. Horizontal Rules Colours in web page: Background colour, Text colour, Link colour. Lists: Ordered Lists, Unordered Lists, Definition List, Nesting lists. Linking HTML Documents. **4 hours**
2. **URLs Types of URLs:** Absolute URLs, Relative URLs. Linking HTML Documents: The Anchor tag, Linking to document in same folder, Linking to document in Different folder, Linking to document on the web, Linking to specific location within document. Inserting E-mail links Including Images: Image formats Linking HTML Documents: The Anchor tag, Linking to document in same folder, Linking to document in Different folder, Linking to document on the web, Linking to specific location Within document. **4 hours**
3. **Inserting E-mail links tables, Forms, Frames:** Tables: Creating Tables, Editing of rows and columns of table, rowspan, colspan, formatting tables using attributes border, Border colour, back ground, align, width, cell spacing, cell height. Forms: Creating Forms, Forms controls: text controls, Password fields, Radio Buttons, Check boxes, Reset and Submit buttons. The <TEXTAREA>, <SELECT> and <OPTION> tags. **3 hours**
4. **Frames:** Introduction to frames, Advantages and disadvantages of frames, creating basic frames Frame targeting. Style sheets: Adding style sheet to document: Linking to a Style sheet, Embedding style sheet, Using inline Style sheet Building a small web site **3 hours**
5. **JavaScript:** Introduction to JavaScript, difference between Java and JavaScript, JavaScript syntax, variables and their types, JavaScript operators, arrays and array methods, Program flow: Control statements, exercise, Built-in objects in JavaScript, Array, String, Math, Date objects, documents forms and form elements window location, History object. **6 hours**

Reference Books:

1. Castro, "HTML 4 for World Wide Web, 3rd ed. Pearson education, 1998.
2. Barrett, "Essential JavaScript for web professionals," Pearson Education, 2000

LIST OF EXPERIMENTS

1. Design a home page which will display your information i.e Bio data.
2. Create Hyperlinks in home page i.e educational details, Hobbies, Achievement, My Ideals etc
3. Use table tag to format web page. Also display educational details in tabular format.
4. Create Style sheet to set formatting for text tags. Use it in above pages
5. Design signup form to validate username, password, phone numbers etc .using Java script.
6. Design a sign up form information in database. Perform change password operation on it
7. Develop and demonstrate a DHTML file that includes Javascript for the following problems :
 - a. Input : A number n obtained using prompt
Output: The factorial of a number n
 - b. Input : A number n obtained using prompt
Output: The first n Fibonacci numbers
8. Develop and demonstrate a DHTML file that includes JavaScript for using various menu items and submenu items
9. Design a web page for departmental information system.
10. Design and Develop a shopping cart using HTML and JavaScript

Practical Examination:

Practical Examination should be conducted for three hours under the supervision of external examiner. External examiner should evaluate student by practically and orally.

Note: In the examination each student picks one question from a lot of all the 10 question

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-II

BSH-252: Engineering Mathematics-IV

Teaching Scheme	Examination Scheme	
Lectures 4 Hrs/week	Theory	80 Marks
	Class Test	20 Marks
	Duration of Theory paper	3Hrs

Objectives:

1. To develop Logical understanding of the subject
2. To develop mathematical skill so that students are able to apply mathematical methods & Principal's in solving problems from Engineering fields
3. To produce graduates with mathematical knowledge & computational skill.

Unit-1:

[7 Hours]

Function of complex variable (Differential calculus): Introduction, Analytic function Cauchy Riemann equations in Cartesian and Polar form, Harmonic function, Taylor's series & Laurent's series (without proof), Conformal mapping (geometrical representation of function of complex variable), bilinear transformation.

Unit 2:

[7 Hours]

Function of complex variable: (Integral calculus): Line integral, contour integral: Cauchy's integral theorem, Cauchy's integral formula (without proof), Residues, Cauchy's residue theorem, Integration along unit circle and along upper half of semi circle.

Unit 3:

[6 Hours]

Z Transform: Definition, Z transform of elementary functions, properties of Z transform, Inverse Z transform, Solution of difference equation by Z transform.

Unit 4:**[6 Hours]**

Laplace transform: Definition, Transforms of elementary functions, Properties & theorems of Laplace transforms (without proof), transforms of periodic function, Heaviside unit step function, displaced unit step function, Dirac delta function, error function, Bessel' function of zero order.

Unit 5:**[6 Hours]**

Inverse Laplace transform and its applications : Inverse Laplace transforms by using (i) properties, ii) partial fractions, iii) Convolution theorem, Applications to solve linear differential equations with constant coefficients (Initial value problems), Simultaneous Linear differential equations .

Unit 6:**[8 Hours]**

Fourier Transform and its applications: Fourier integral, Fourier sine and cosine integral, complex form of Fourier integral, Fourier transforms Fourier sine and cosine transform and inverse Fourier transforms Finite Fourier sine and cosine transforms. Solution of one dimensional heat equation by using Fourier transform.

Note: All Theorems are without proofs**Section A: Unit 1, 2, 3****Section B: Unit 4, 5, 6**

Reference Books:

1. P. N. Wartikar and J. N. Wartikar, *A Text Book of Engineering Mathematics* (Volume-I, II, III), Pune Vidyarthi Griha Prakashan, Pune.
2. B. S. Grewal, "Higher Engineering Mathematics," Khanna Publications, New Delhi
3. H.K. Das, "Advanced Engineering Mathematics," S. Chand & Company.
4. B.V. Ramana, "Higher Engineering Mathematics ,," (Tata McGraw-Hill).
5. Erwin Kreyszig, "Advanced Engineering Mathematics," Wiley Eastern Ltd.
6. Ravish R Singh, Mukul Bhat, "Engineering Mathematics A Tutorial Approach," by, Mc Graw Hill

Pattern of Question Paper:

The units in the syllabus shall be divided in two equal sections. Question paper shall be set having two sections A and B. Section A questions shall be set on first three units (1,2,3) and Section B questions on remaining three units (4,5,6). Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 and 6 be made compulsory and should have at least ten bits of two marks out of which FIVE to be solved.
4. Two questions from remaining questions from each section be asked to solve having weightage of 15 marks

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD**FACULTY OF ENGINEERING AND TECHNOLOGY****Second Year Engineering****Semester-II****CSE-253: DISCRETE MATHEMATICS**

Teaching Scheme	Examination Scheme	
Lectures 4 Hrs/week	Theory	80 Marks
	Class Test	20 Marks
	Duration of Theory paper	3Hrs

Course Objectives:

Students will learn the essential mathematic concepts and ideas in discrete mathematics, which are required for rigorous studies in most areas in computer science. After completing this course satisfactorily, a student will be:

1. Able to construct simple mathematical proofs and possess the ability to verify them
2. Able to understand logical arguments and logical constructs
3. Have a better understanding of sets, functions, and relations.
4. Acquire ability to describe computer programs in a formal mathematical manner.
5. Possess the mathematical knowledge and maturity that are required for upper level computer.

UNIT-1 **4 Hours**

Set Theory: Sets and Subsets, Set Operations and the Laws of Set Theory, Counting and Venn Diagrams, A First Word on Probability, Countable and Uncountable Sets

UNIT – 2 **5 Hours**

Fundamentals of Logic: Basic Connectives and Truth Tables, Logic Equivalence – The Laws of Logic, Logical Implication – Rules of Inference

UNIT-3 **11 Hours**

Fundamentals of Logic contd.: The Use of Quantifiers, Quantifiers, Definitions and the Proofs of Theorems.

Properties of the Integers: Mathematical Induction, The Well Ordering Principle – Mathematical Induction, Recursive Definitions

UNIT-4 **10 Hours**

Relations and Functions: Cartesian Products and Relations, Functions – Plain and One-to-One, Onto Functions – Stirling Numbers of the Second Kind, Special Functions, The Pigeon-hole Principle, Function Composition and Inverse Functions

Relations contd.: Properties of Relations, Computer Recognition – Zero-One Matrices and Directed Graphs, Partial Orders – Hasse Diagrams, Equivalence Relations and Partitions

UNIT – 5 **5 Hours**

Groups: Definitions, Examples, and Elementary Properties, Homomorphisms, Isomorphisms, and Cyclic Groups, Cosets, and Lagrange's Theorem.

Coding Theory and Rings: Elements of Coding Theory, The Hamming Metric, The Parity Check, and Generator Matrices

Unit – 6 **5 Hours**

Group Codes: Decoding with Coset Leaders, Hamming Matrices

Rings and Modular Arithmetic: The Ring Structure – Definition and Examples, Ring Properties and Substructures, The Integers Modulo n

Text Book:

1. Ralph P. Grimaldi, "Discrete and Combinatorial Mathematics," 5th Edition, Pearson Education, 2004.(Chapter 3.1, 3.2, 3.3, 3.4, Appendix 3, Chapter 2, Chapter 4.1, 4.2, Chapter 5.1 to 5.6, Chapter 7.1 to 7.4, Chapter 16.1, 16.2, 16.3, 16.5 to 16.9, and Chapter 14.1, 14.2, 14.3).

Reference Books:

1. Kenneth H. Rosen, "Discrete Mathematics and its Applications," 7th Edition, McGraw Hill, 2010.
2. Jayant Ganguly, "A Treatise on Discrete Mathematical Structures," Sanguine-Pearson, 2010.
3. D.S. Malik and M.K. Sen, "Discrete Mathematical Structures: Theory and Applications," Cengage Learning, 2004.
4. Thomas Koshy. Discrete Mathematics with Applications," Elsevier, 2005, Reprint 2008.

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-II

CSE-254: OBJECT ORIENTED PROGRAMMING USING C++

Teaching Scheme		Examination Scheme	
Lectures	4 Hrs/week	Theory	80 Marks
		Class Test	20 Marks
		Duration of Theory paper	03 Hrs

Unit-1:

[5 Hours]

Introduction: Overview of C++, Sample C++ program, Different data types, operators, expressions, and statements, arrays and strings, pointers & user-defined types,

Function Components, argument passing, inline functions, function overloading, recursive functions.

Unit-2:

[10 Hours]

Classes & Objects – I: Class Specification, Class Objects, Scope resolution operator, Access members, Defining member functions, Data hiding, Constructors, Destructors, Parameterized constructors, Static data members, Functions

Friend functions, passing objects as arguments, Returning objects, Arrays of objects, Dynamic objects, Pointers to objects, Copy constructors, Generic functions and classes, Applications

Operator overloading using friend functions such as +, -, pre-increment, post-increment, [] etc., overloading <<, >>.

Unit-3:

[5 Hours]

Inheritance-I: Base Class, Inheritance and protected members, protected base class inheritance, inheriting multiple base classes,

Unit-4

[5 Hours]

Inheritance-II: Constructors, Destructors and Inheritance, Passing parameters to base class constructors, Granting access, Virtual base classes.

Unit-5: Virtual functions, Polymorphism:

[5 Hours]

Virtual function, calling a Virtual function through a base class reference, Virtual attribute is inherited, Virtual functions are hierarchical, pure virtual functions, Abstract classes, Using virtual functions, Early and late binding.

Unit-6: System Basics, File I/O, Exception Handling, STL: [10 Hours]

C++ stream classes, Formatted I/O, I/O manipulators, fstream and the File classes, File operations Exception handling fundamentals, Exception handling options STL: An overview, containers, vectors, lists, maps.

Text Books:

1. Herbert Schildt: *The Complete Reference C++*, 4th Edition, Tata McGraw Hill, 2003.

Reference Books:

1. Stanley B.Lippmann, Josee Lajoie: *C++ Primer*, 4th Edition, Pearson Education, 2005
2. Paul J Deitel, Harvey M Deitel: *C++ for Programmers*, Pearson Education, 2009.
3. K R Venugopal, Rajkumar Buyya, T Ravi Shankar: *Mastering C++*, TataMcGraw Hill, 1999.

Section A: Unit 1, 2, 3

Section B: Unit 4, 5, 6

PATTERN OF QUESTION PAPER:

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
4. Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks.

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,**AURANGABAD****FACULTY OF ENGINEERING AND TECHNOLOGY****Second Year Engineering****Semester-II****CSE-255: MICROPROCESSORS**

Teaching Scheme		Examination Scheme	
Lectures	4 Hrs/week	Theory	80 Marks
Tutorial	---	Class Test	20 Marks
		Duration of Theory paper	03 Hrs

Unit – I [5 Hours]

Introduction, Microprocessor Architecture – 1: A Historical Background, The Microprocessor-Based Personal Computer Systems. The Microprocessor and its Architecture: Internal Microprocessor Architecture, Real Mode Memory Addressing.

Unit – 2 [5 Hours]

Microprocessor Architecture – 2, Addressing Modes: Introduction to Protected Mode Memory Addressing, Memory Paging, Flat Mode Memory Addressing Modes: Data Addressing Modes, Program Memory Addressing Modes, Stack Memory Addressing Modes

Unit – 3 [10 Hours]

Programming – 1: Data Movement Instructions: MOV Revisited, PUSH/POP, Load-Effective Address, String Data Transfers, Miscellaneous Data Transfer Instructions, Segment Override Prefix, Assembler Details. Arithmetic and Logic Instructions: Addition, Subtraction and Comparison, Multiplication and Division.

Programming – 2: Arithmetic and Logic Instructions (continued): BCD and ASCII Arithmetic, Basic Logic Instructions, Shift and Rotate, String Comparisons. Program Control Instructions: The Jump Group, Controlling the Flow of the Program, Procedures, Introduction to Interrupts, Machine Control and Miscellaneous Instructions.

Unit - 4 [7 Hours]

Hardware Specifications, Memory Interface – 1: Pin-Outs and the Pin Functions, Clock Generator, Bus Buffering and Latching, Bus Timings, Ready and Wait State, Minimum versus Maximum Mode. Memory Interfacing: Memory Devices

Unit – 5**[6 Hours]**

Memory Interface – 2, I/O Interface – 1: Memory Interfacing (continued); Address Decoding, 8088 Memory Interface, 8086 Memory Interface. Basic I/O Interface: Introduction to I/O Interface, I/O Port Address Decoding.

Unit -6**[7 Hours]**

I/O Interface – 2, Interrupts, and DMA: I/O Interface (continued): The Programmable Peripheral Interface 82C55, Programmable Interval Timer 8254. Interrupts: Basic Interrupt Processing, Hardware Interrupts: INTR and INTA/; Direct Memory Access: Basic DMA Operation and Definition.

Text Book:

1. Barry B Brey: *The Intel Microprocessors*, 8th Edition, Pearson Education, 2009.(Listed topics only from the Chapters 1 to 13)

Reference Books:

1. Douglas V. Hall: *Microprocessors and Interfacing*, Revised 2nd Edition, TMH, 2006.
2. K. Udaya Kumar & B.S. Umashankar : *Advanced Microprocessors & IBM-PC Assembly Language Programming*, TMH 2003.
3. James L. Antonakos: *The Intel Microprocessor Family: Hardware and Software Principles and Applications*, Cengage Learning, 2007.

Section A: Unit 1, 2, 3**Section B: Unit 4, 5, 6****PATTERN OF QUESTION PAPER:**

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Minimum ten questions
2. Five questions in each section
3. Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
4. Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks.

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,**AURANGABAD****FACULTY OF ENGINEERING AND TECHNOLOGY****Second Year Engineering****Semester-II****CSE-256: COMPUTER GRAPHICS****Teaching Scheme**

		Examination Scheme	
Lectures	4 Hrs/week	Theory	80 Marks
Tutorial	---	Class Test	20 Marks
		Duration of Theory paper	03 Hrs

Objectives:

After completing this course, students will be able to

- Identify and explain the core concepts of computer graphics.
- Apply graphics programming techniques to design, and create computer graphics scenes.

Unit 1: Introduction:**5 hours**

Applications of computer graphics; A graphics system; Images: Physical and synthetic; Imaging Systems; The synthetic camera model; The programmer's interface; Graphics architectures; Programmable Pipelines; Performance Characteristics

Graphics Programming: The Sierpinski gasket; Programming Two Dimensional Applications.

Unit 2: The OpenGL:**4 hours**

The OpenGL API; Primitives and attributes; Color; Viewing; Control functions; The Gasket program; Polygons and recursion; The three-dimensional gasket; Plotting Implicit Functions

Unit 3: Input and Interaction:**11 hours**

Interaction; Input devices; Clients and Servers; Display Lists; Display Lists and Modeling; Programming Event Driven Input; Menus; Picking; A simple CAD program; Building Interactive Models; Animating Interactive Programs; Design of Interactive Programs; Logic Operations

Geometric Objects and Transformations-I:

Scalars, Points, and Vectors; Three-dimensional Primitives; Coordinate Systems and Frames; Modeling a Colored Cube; Affine Transformations; Rotation, Translation and Scaling;

Unit-4**4 hours**

Geometric Objects and Transformations-II: Geometric Objects and Transformations; Transformation in Homogeneous Coordinates; Concatenation of

Transformations; OpenGL Transformation Matrices; Interfaces to three-dimensional applications; Quaternion's.

Unit 5: Viewing:

10 hours

Classical and computer viewing; Viewing with a Computer; Positioning of the camera; Simple projections; Projections in OpenGL; Hidden-surface removal; Interactive Mesh Displays; Parallel-projection matrices; Perspective-projection matrices; Projections and Shadows.

Hours Lighting and Shading: Light and Matter; Light Sources; The Phong Lighting model; Computation of vectors; Polygonal Shading; Approximation of a sphere by recursive subdivisions; Light sources in OpenGL; Specification of materials in OpenGL; Shading of the sphere model; Global Illumination.

Unit 6: Implementation:

6 hours

Basic Implementation Strategies; Four major tasks; Clipping; Line-segment clipping; Polygon clipping; Clipping of other primitives; Clipping in three dimensions; Rasterization; Bresenham's algorithm; Polygon Rasterization; Hidden-surface removal; Antialiasing; Display considerations.

Text Books:

- Edward Angel, "*Interactive Computer Graphics A Top-Down Approach with OpenGL*," 5th Edition, Pearson Education, 2008.
(Chapters 1 to 7)

Reference Books:

- Donald Hearn and Pauline Baker, "*Computer Graphics- OpenGL Version*," 3rd Edition, Pearson Education, 2004.
- F.S. Hill Jr, "*Computer Graphics Using OpenGL*," 3rd Edition, PHI, 2009.
- James D Foley, Andries Van Dam, Steven K Feiner, John F Hughes, "*Computer Graphics*," Pearson Education 1997.

Section A: Unit 1, 2, 3

Section B: Unit 4, 5, 6

PATTERN OF QUESTION PAPER:

Six units in the syllabus shall be divided in two equal parts i.e. 3 units in each part. Question paper shall be set having two sections A and B. Section A questions shall be set on first part and Section B questions on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

- Minimum ten questions
- Five questions in each section
- Question no 1 from section A and Question no 6 from section B having weightage of 10 marks each be made compulsory and should have at least eight bits of two marks out of which five to be solved.
- Two questions from remaining questions from each section A and B be asked to solve each having weightage of 15 marks.

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AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-II

**CSE-271: LAB-VI: OBJECT ORIENTED PROGRAMMING USING
C++ LABORATORY**

Teaching Scheme

Practical: 2 Hrs/week

Examination Scheme

Practical/Oral: 50 Marks

LIST OF EXPERIMENTS

1. Design, develop, and execute a program in C++ based on the following requirements:
 An EMPLOYEE class is to contain the following data members and member functions: Data members: Employee_Number (an integer), Employee_Name (a string of characters), Basic_Salary (an integer), All_Allowances (an integer), IT (an integer), Net_Salary (an integer).
 Member functions: to read the data of an employee, to calculate Net_Salary and to print the values of all the data members. ($All_Allowances = 123\%$ of Basic; Income Tax (IT) = 30% of the gross salary (= basic_Salary - All_Allowance); Net_Salary = Basic_Salary + All_Allowances - IT)
2. Design, develop, and execute a program in C++ to create a class called STRING and implement the following operations. Display the results after every operation by overloading the operator <<.
 - i. STRING s1 = "BAMU"
 - ii. STRING s2 = "AURANGABAD"
 - iii. STRING s3 = s1 + s2; (Use copy constructor)
3. Design, develop, and execute a program in C++ to create a class called DATE with methods to accept two valid dates in the form dd/mm/yy and to implement the following operations by overloading the operators + and -. After every operation the results are to be displayed by overloading the operator <<.
 - i. no_of_days = d1 - d2; where d1 and d2 are DATE objects, d1 \geq d2 and no_of_days is an integer.
 - ii. d2 = d1 + no_of_days; where d1 is a DATE object and no_of_days is an integer.
4. Design C++ classes with static members, methods with default arguments, friend functions. (For example, design matrix and vector classes with static allocation, and a friend function to do matrix-vector multiplication)

5. Implement complex number class with necessary operator overloading and type conversions such as integer to complex, double to complex, complex to double etc.
6. Implement Matrix class with dynamic memory allocation and necessary methods. Give proper constructor, destructor, copy constructor, and overloading of assignment operator.
7. Overload the new and delete operators to provide custom dynamic allocation of memory.
8. Develop a template of linked-list class and its methods.
9. Develop templates of standard sorting algorithms such as bubble sort, insertion sort; merge sort, and quick sort.
10. Design stack and queue classes with necessary exception handling.
11. Practical based on implementation of various types of inheritance

Practical Examination:

Practical Examination should be conducted for three hours under the supervision of external examiner. External examiner should evaluate student by practically and orally.

Note: In the examination each student picks one question from a lot of *all* the 11 question

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-II

CSE-272: LAB-VII: MICROPROCESSORS LABORATORY

Teaching Scheme

Practical: 2 Hrs/week

Examination Scheme

Practical/Oral: 50 Marks

LIST OF EXPERIMENTS

1. Study of MASM/TASM.
2. Write an assembly language program to perform 8 bit, 16 bit addition.
3. Write an assembly language program to perform 8 bit, 16 bit subtraction.
4. Write an assembly language program to perform negative result subtraction.
5. Write an assembly language program to perform 8 bit, 16 bit Multiplication.
6. Write an assembly language program to perform 16 bit by 8 bit division
7. Write an assembly language program to check whether entered number is even or odd.
8. Write an assembly language program to calculate average of temperatures.
9. Write an assembly language program to perform sum of digits for 2, 3 digits numbers.
10. Write an assembly language program to perform conversion from two ASCII no's to packed BCD.
11. Write an assembly language program to perform conversion from BCD to Hex.
12. Write an assembly language program to interface stepper motor.(application)
13. Write an assembly language program to interface LED (application)

Practical Examination:

Practical Examination should be conducted for three hours under the supervision of external examiner. External examiner should evaluate student by practically and orally.

Note: In the examination each student picks one question from a lot of all the 13 question

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-II

CSE-273: LAB-VIII: COMPUTER GRAPHICS LABORATORY

Teaching Scheme

Practical: 2 Hrs/week

Examination Scheme

Term Work: 50 Marks

Term Work:

Term work shall consists of record of the experiments carried out during the course, which should include appropriate explanation for the corresponding experiment indicating what is learnt from the experiment. The term work shall consist of at least 10 experiments.

Assessment of term work should be done as follows:

- * Continuous lab assessment: 40 %
- * Actually performing practical in the laboratory: 40 %
- * Oral Examination conducted (internally) at the time of submission: 20

LIST OF EXPERIMENTS

1. Study of basic graphics functions defined in "graphics.h".
2. Study of graphics standards like CORE, GKS (Graphics Kernel System), GKS-3D(Graphics Kernel System -3 Dimensions), PHIGS (Programmer's Hierarchical Interactive Graphics Systems), CGM (Computer Graphics Metafile), CGI (Computer Graphics Interface).
3. Program for Line Drawing using DDA algorithm.
4. Program for Line Drawing using Bresenham's algorithm.
5. Implement Polygon filling algorithms.
6. Programs using 2-D transformations.
7. Programs to study window to viewport transformations.
8. Program for Line clipping algorithm.
9. Programs to study 3-D transformations..
10. Program to create a simple and proper "User Interface" for a defined application.

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD**

FACULTY OF ENGINEERING AND TECHNOLOGY

Second Year Engineering

Semester-II

CSE-274: LAB-IX: OPEN SOURCE LABORATORY

Teaching Scheme	Examination Scheme	
Lectures	2 Hrs/week	Practical & Oral : 50 Marks
Practical	2 Hrs/week	

Objectives:

This course is aimed to:

- Understand open-source movement worldwide
- Use the fastest growing open source operating system, "Linux", today
- Effectively install, use and perform basic configuration of Linux system
- Build user-level skills to perform Linux system administration in it profession
- Enable competency in industry-problem identification and resolution
- Develop application using lamp

Unit 1: Linux and Open Source

3 hours

Linux Usage basics: Logging into the system, changing users and editing text files. Running Commands and Getting Help, Browsing the file system, Users, Groups and Permission

Unit 2: Linux Administration

3 hours

Installation of Linux interactively, Perform, user and group administration, Administer the Linux printing subsystem, Automate tasks with at, cron, Install, update, query and remove software packages with RPM

Unit 3: Linux Application

4 hours

Accessing and Running applications: cc compiler, gcc compiler, Mozilla Firefox. Multimedia in Linux: Listening to audio, Playing video, Using digital camera, Recording musics / video CDs.

Unit 4: Apache and PHP

4 hours

Introduction to the web server .installing Apache on Linux: httpd service.

PHP: testing installation basics of PHP scripts, variables Data types, Operators and – Constants, flow control functions, if statement, loops arrays, strings, Dates and times-

Unit 5: MySQL, server, and Application**3 hours**

MySQL: configuration MySQL server, working with MySQL Databases, MySQL Tables,

Commands – INSERT, SELECT, UPDATE, REPLACE, DELETE. Date and Time function MySQL.

Unit 6: PHP**3 hours**

MySQL Application Development: Connecting to MySQL with PHP, Inserting data with PHP, retrieving data with PHP, Developing PHP scripts for dynamic web page like Feedback form, online admission form, online test.

Reference Books:

	Title	Author	Pub
1	Red Hat Linux Bible	Christopher Negus	Wiley Publishing ISBN : 0-7645-4333-4
2	PHP, MySQL and Apache	Julie C Meloni	Pearson Education ISBN : 81-297-0443-9
3	The Complete Reference Linux	Peterson	Tata McGRAW HILL ISBN : 0-07-044489-7
4	UNIX using Linux	Jack Dent, Tony Gaddis	Course Technology (Thomson Learning) ISBN : 981-240-218-7

Internet Resources:

Sn	Title	URL
1	Open Source Phenomenon	http://opensource.org/
2	Open Source Technology :	http://www-
3	Open Source : Benefits	http://www.sun.com/software/opensource/
4	Beginner's Guide to Linux - Michael Jordan	http://www.linux.org/lessons/beginner/
5	Linux Course for Intermediate Level Users	http://www.linux.org/lessons/interm/index.html
6	PHP Manual	http://www.php.net/tut.php

LIST OF EXPERIMENTS.

1. Installation of Linux
2. Use of various commands
3. Use of Text Processing Tools: grep, cut,
4. User and Group Creation
5. Back up using tar
6. Installation using RPM
7. C/C++ program using cc / gcc
8. Configuring Apache
9. PHP script for sorting the marks
10. PHP scripts for other tasks
11. MySQL Installation, Configuration and Testing
12. Design of admission form using PHP – MYSQL

Practical Examination:

Practical Examination should be conducted for three hours under the supervision of external examiner. External examiner should evaluate student by practically and orally.

Note: In the examination each student picks one experiment based on above Concept.

BSH 245 Basics of Communication Skills

Teaching Scheme
Practical: 2 Hrs/ Week

Examination Scheme
Term Work: 50 Marks

Course Curriculum

Unit I	<i>Grammar and Usage</i>	7 Hrs
	<ul style="list-style-type: none"> • Overview of basic Mid-level English Grammar. • Parts of Speech • Prepositions and Conditionals. • Tense and concept of time. • Sentence Construction (Concord). • Vocabulary: Words, Idioms, Phrases, Antonyms and Synonyms. 	
Unit II	<i>Speaking Skills</i>	5 Hrs
	<ul style="list-style-type: none"> • Training in Sound Recognition • Stress and Intonation pattern in spoken communication • Rhythm and effective English communication • Sound Recognition Exercise (Language Lab Exercise). • Common Errors in English. 	
Unit III	<i>Listening and Reading Skills</i>	3 Hrs
	<ul style="list-style-type: none"> • Active and Passive Listening. • Note taking tips • Techniques of reading • Types and Techniques – skimming and scanning of reading 	
Unit IV	<i>Writing Skills</i>	5 Hrs
	<ul style="list-style-type: none"> • Identification of different writing styles (Four Writing Styles). • Business Letters • E-mail Writing • Report Writing • Job Applications • Resume Preparation • Drafting: Memo, Circulars, Notices, Agendas etc. 	



Term Work: The Term Work consists of 10 Experiments from the above said syllabus.

Texts:

1. Farhathullah, T. M. **Communication Skills for Technical Students**. Kolkata: Orient Blackswan (2008).
2. Bansal R.K. and J. B. Harrison. **Spoken English**. Chennai: Orient Longman Ltd. (1997).
3. A. V. Martinet and A. J. Thomson. **A Practical English Grammar**. Oxford: University Press (1986).

References:

- Murphy, Raymond. **Essential English Grammar**. Cambridge: University Press (2000).
- Hewings, Martin. **Advanced English Grammar**. Cambridge: University Press (2003).
- Apte, Madhavi. **A Course in English Communication**. New Delhi: Prentice Hall of India Pvt. (2008).

Web Links:

- <http://www.bmconsultantsindia.com/advanced-english-speaking.html>
- <http://englishtrainer.blogspot.in>
- <http://www.englishclub.com/learn-english/language-skills.htm>

