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],
[3]	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.

★ ★ ★ ★ ★ ★ ★ ★

******

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.

-**-

S/310712/-*

Dr BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

Revised Structure and Syllabus of Second Year Engineering of

ELETRONICS [EC/ECT/IE/E & C]

EFECTIVE 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 shouldl 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 SecondYear 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 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-Ticketwith 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 acourse 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**
Practical/ Oral examination: Maximum Marks

Objectives: 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 is 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 refereed 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 EXAMIANTION AND THE QUANTUM OF PUNISHMEN T 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 ot 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.	

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Sr.No	Semester-I	Contact Hrs/Week				Examination Scheme (Marks)					
Subject Code	**Subject**	**L**	**T**	**P**	**Total**	**CT**	**TH**	**TW**	**P**	**Total**	**Duration of Theory Examination**
Part-I											
BSH201	Engineering Maths-III	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD202	Electronic Devices & Circuits-I	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD203	Network Analysis	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD204	Communication Engineering	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD205	Data Structure	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD221	Lab-1 Electronic Devices & Circuits-I	-	-	2	2	-	-	-	50	50	
EXD222	Lab -2 Network Analysis	-	-	2	2	-	-	-	50	50	
EXD223	Lab-3 Communication Engineering	-	-	2	2	-	-	-	50	50	
EXD224	Lab-4 Data Structure	-	-	2	2	-	-	50	-	50	
EXD225	Lab-5 Electronic Workshop -I	-	-	2	2	-	-	50	-	50	
Total of Part - I		20		10	30	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

P: Practical / Oral Examination

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Sr.No	Semester-II	Contact Hrs/Week				Examination Scheme (Marks)					
Subject Code	**Subject**	**L**	**T**	**P**	**Total**	**CT**	**TH**	**TW**	**P**	**Total**	**Duration of Theory Examination**
Part-II (Second Term)											
BSH252	Engineering Math-IV	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD253	Electronic Devices & Circuits-II	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD254	Digital Logic Design	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD255	Signals & Systems	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD256	Electrical Machines & Instrumentation	4	-	-	4	20	80	-	-	100	3 Hrs.
EXD271	Lab-1 Electronic Devices & Circuits-II	-	-	2	2	-	-	-	50	50	
EXD272	Lab- 2 Digital Logic Design	-	-	2	2	-	-	-	50	50	
EXD273	Lab- 3 Signals & Systems	-	-	2	2	-	-	-	50	50	
EXD274	Lab-4 Electrical Machines & Instrumentation	-	-	2	2	-	-	50	-	50	
EXD275 BSH	Lab-5 Communication Skill	-	-	2	2	-	-	50	-	50	
Total of Part - II		20	-	10	30	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

P: Practical / Oral Examination

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-I

BSH201: ENGINEERING MATHEMATICS-III

Teaching Scheme	**Examination Scheme**
Theory : 04 hrs/week	**Theory Examination : 80 Mark** **Class Test : 20 Marks**

Unit 1 **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.	06
Unit 2 **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.	06
Unit 3 **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.	08
Unit 4 **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 sölenoidal vector field.	06
Unit 5 **Vector Calculus (Integral calculus):** The line integral, Surface integral, volume integral, Gauss Divergence theorem, Stoke's theorem, Green's theorem	06
Unit 6 **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	08

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Text Books:

1. **A Text Book of Engineering Mathematics (Volume-I, II, III)** by P. N. Wartikar and J. N. Wartikar, Pune Vidyarthi Griha Prakashan, Pune.
2. **Higher Engineering Mathematics** by B. S. Grewal, Khanna Publications, New Delhi.
3. **Advanced Engineering Mathematics** by H.K. Das, S. Chand & Company.

Reference Books:

1. **Higher Engineering Mathematics** by B.V. Ramana (Tata McGraw-Hill).
2. **Advanced Engineering Mathematics by Erwin Kreyszig, Wiley Eastern Ltd.**
3. **Engineering Mathematics A Tutorial Approach** by Ravish R Singh, Mukul Bhat , Mc Graw Hill

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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

For 80 Marks papers:

1) Minimum 10 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 atleast 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 (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-I

EXD202: ELECTRONICS DEVICES AND CIRCUITS-I

Teaching Scheme			Examination Scheme		
Theory	:	04 hrs/week	Theory Examination	:	80 Mark
Practical	:	02 hrs/week	Class Test	:	20 Marks
			Practical/Oral	:	50 Marks

Unit 1 **Semiconductor Diodes:** Band structure of PN junction, Quantitative theory of PN junction diode, Volt-amp characteristics, Temperature dependence, Transistion and Diffusion capacitance of PN junction , Zener and Avalanche Breakdown, Varactor diode, Point Contact Diode and Solar cells, their construction and Characteristics (no Derivation) **Diode Rectifiers**: Half wave, Full wave and Bridge rectifiers, Types of Filters, Ripple factor and Regulation characteristics.	04
Unit 2 **BJT Biasing and small signal models:** Necessity of BJT biasing, Transistor biasing methods, Stability factor, Thermal stabilization, Thermal runaway and Compensation circuits, Transistor as an Amplifier, h-parameter model, Analysis of Transistor Amplifier circuits using h-parameters, CB,CE and CC Amplifier configurations and performance factors, Analysis of Single Stage Amplifier, RC coupled Amplifiers, Effects of bypass and coupling capacitors, Frequency response of CE amplifier, Emitter follower, Cascaded Amplifier, Darlington configuration, Boot strapping.	08
Unit 3 **Field Effect Transistor and MOSFET:** JFET and its characteristics, Pinch off voltage, Drain saturation current, JFET amplifiers, CS,CD,CG amplifiers ,their analysis using small signal JFET model ,Biasing the FET, The FET as VVR Overview of DMOSFET, EMOSFET, Power MOSFET, n MOSFET, pMOSFET and CMOS devices, Handling precautions of CMOS devices, MOSFET as an Amplifier and Switch, Biasing in MOSFET, Small signal operation and models, Single stage MOS amplifier, **Introduction to MOSFET as VLSI device**- VI characteristics equation in terms of W/L ratio, MOSFET capacitances, CMOS Inverter, Comparison of FET with MOSFET and BJT w.r.t. to device and Circuit parameter.	08
Unit 4 **Frequency response of Amplifiers and analysis:** High frequency equivalent circuits for BJT and FET amplifier, Calculation of lower and Higher cutoff frequencies, Bode plot of frequency response, relation bandwidth and rise time, Compensation to improve the low frequency response of amplifier, Video amplifiers, Optocouplers, Hetrojunction Bipolar transistor, BJT modeling.	08
Unit 5 **Feedback and Oscillators:** Principle of Negative feedback in electronic circuits, Voltage series, Voltage shunt, Current series, Current shunt types of Negative feedback, Typical transistor circuits effects of Negative feedback on Input and Output impedance, Voltage and Current gains, Bandwidth, Noise and Distortion. Principle of Positive feedback, Concept of Stability in electronics circuits, Barkhausen criteria for oscillaton, RC, Clapp, WienBridge, Colpitt, Hartley, Tuned LC ,UJT	08

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Relaxation oscillators (working and derivation of frequency of oscillators)	
Unit 6 **Transistor at High Frequencies:** Hybrid ∏ CE amplifier, Hybrid ∏ conductance, Hybrid ∏ capacitance, Validity at Hybrid ∏ model, Variation of Hybrid ∏ parameters., CE short circuit current gain ,Current gain with resistive load, Single stage CE transistor amplifier response, Gain bandwidth product, Emitter follower at high frequency.	04
Text Books: 1. Milliman's Electronics Devices and Circuits,Jacob Milliman,Christos C Halkias, Satyabrata Jit(Third Edition),Tata McGraw Hill. 2. Electronics Devices and Circuit Theory, Robert L. Boylestad, Louis Nashelsky, (Tenth Edition) Pearson Education, Inc. 3. "Electronics Devices and Circuits", David A.Bell,(Fifth Edition),Oxford Press. 4. "Basic VLSI Design" Pucknell, Kamran,(Third Edition),PHI.	
Reference Books: 1. "Electronics Devices and Circuits", Allen Mothershead . 2. "Electronics Devices and Circuits", Dharma Raj Cheruka and B.T.Krishna, Pearson Education. 3. "Microelectronics Circuits" A.S. Sedra and K.C.Smith ,(Fifth edition),Oxford University Press(India)	
LIST OF PRACTICALS: 1. To plot VI characteristics of Junction Diode and Zener Diode. 2. For a Half wave rectifier with capacitor filter and to find the line and load regulation and ripple factor. 3. For a bridge rectifier with capacitor filter and to find line and load regulation and ripple factor. 4. To determine voltage gain, Current gain, Input Impedance, and Out impedance of Common Emitter amplifier. 5. Determine h-parameter for CE configuration. 6. Measurement of Input and output impedance and voltage gain of Darlington circuit with and without bootstrapping. 7. Plot characteristic of CSFET. Determine amplification factor, transconductance and dynamic resistance. 8. Determine Input &output impedance and voltage gain and current gain for CSFET. 9. To plot characteristics of CS DMOS FET. 10. To observe effect of Bypass capacitor on frequency response of single stage CE amplifier. 11. To perform any one RC and LC oscillator. 12. To perform voltage series, voltage shunt and current shunt feedback topologies. **Note**: Minimum eight experiments shall be performed from the above list. It Is advised to conduct the practicals on Bread board.	
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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus. **For 80 Marks papers:** 1. Minimum 10 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 atleast 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 (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-I

EXD203: NETWORK ANALYSIS

Teaching Scheme			Examination Scheme		
Theory	:	04 hrs/week	Theory Examination	:	80 Mark
Practical	:	02 hrs/week	Class Test	:	20 Marks
			Practical/Oral	:	50 Marks

Unit 1 **Basics and Network Theorem** Types of Networks, Voltage & Current sources & their types, Star Delta transformation, Loop & Node analysis for DC, AC, Dependent & Independent Sources, Coupled networks. Network Theorems: Superposition Theorem, Thevenins Theorem, Nortans Theorem, Maximum Power Transfer theorem, Reciprocity Theorem, Millmans Theorem, Application of Theorem to DC and AC network with dependent and Independent sources.	08
Unit 2 **Network Topology** Graph of Network, Concept of Tree and Co tree, Incident matrix, Tie set and Cut set matrix, formulation of equilibrium equations in matrix form, Solution of resistive networks, Principles of duality.	04
Unit 3 **Filters and Attenuator & Equalizers** Parameters of Filters, Unit of Attenuation-Decibel and Neper, propagation constant, Classification of filter, Basic filter network, Design of Constant K filter & M Derived filters (Low pass, High Pass, Band Pass and Band Stop filters. Attenuators:, Symmetrical & Asymmetrical attenuators, two terminal & four Terminal equalizers.	08
Unit 4 **Two Port Networks** Z, Y, ABCD, H parameter, Interconnection of Two port networks	06
Unit 5 **Transient Response** Behavior of ckt under switching condition and their representation, Initial and final condition, Convolution integral, transform RLC ckt for AC and DC excitation , step, Ramp and impulse function and their Laplace Transform, waveform synthesis.	08
Unit 6 **Resonance** Series and parallel resonance, variation of I, V with frequency in RLC ckt, frequency response of series and parallel ckt, Q factor, selectivity and Bandwidth of Series and Parallel Ckt.	06

Text Books:

1. Circuit theory by A. Chakrabarti ,Dhanpat Rai & Co.
2. Circuit theory & application by Sudhkar Palli
3. Networks & System by D.Roy Choudhary , New age international publication
4. Theory & Problem of Electric Circuit by A.Bruce Carlson, TMH
5. Electric circuit Analysis by S.N. Sivanandam,Vikas publication House

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Reference Books:

1. Circuit analysis & Application by William D. Stanley, Pearson
2. Circuit analysis by M.E. Van Valkenburs ,PHI

LIST OF PRACTICALS:

1. Study of Series Resonance
2. Study of Parallel Resonance
3. Study of Super Position Theorem
4. Study of Maximum Power Transfer Theorem
5. Study of Thevenin's Theorem
6. Study of Norton's Theorem
7. Study of Two Port Network Parameter
8. Study of Attenuator Circuit
9. Study of equalizer circuit

Note: Minimum eight experiments shall be performed from the above list.

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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

For 80 Marks papers:

1) Minimum 10 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 atleast 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 (EC/ECT/E&C/IE)

SEMESTER –I

EXD204: COMMUNICATION ENGINEERING

Teaching Scheme:	**Examination Scheme:**
Theory : 04 hrs/week	**Theory Examination : 80 Marks**
Practical : 02 hrs/week	**Class Test : 20 Marks**
	Practical/Oral : 50 Marks

Unit-1 **Overview & Basic Communication:** Basebands, Concept of radio comm., Types of modulations, Amplitude modulation, Power relations, Modulation by several sine waves, Flywheel effect, Block diagram of AM transmitter, Single sideband technique, Balanced modulator, Methods to suppress unwanted sidebands, DSBSC, ISB, Concept of VSB. Noise, different types of noise.	08 Hrs
Unit-2 **Angle Modulation:** Concept of angle modulation, Frequency modulation and Phase modulation, Characteristics and frequency spectrum of FM wave, Bandwidth requirement, Comparison of AM, FM and PM, Direct and indirect method of FM generation.	06 Hrs
Unit-3 **Receivers:** TRF receiver, Super heterodyne receiver, AM receiver: RF amplifier, Image frequency rejection, Mixer, IF amplifier, Demodulator, AF and power amplifier, Sensitivity, Selectivity, Fidelity, Tracking, AGC.	06 Hrs
Unit-4 **FM Receiver:** RF amplifier, Mixer, Amplitude limiter, FM Demodulators, Their comparison, SSB demodulator, SSB receiver.	06 Hrs
Unit-5 **Pulse and Digital Signals:** Multiplex technique: TDM, FDM, Analog pulse modulation: PAM, PWM and PPM, Sampling theorem, Principles of PCM, Quantisation noise, Differential PCM, Delta modulation.	06 Hrs
Unit-6 **Electro Acoustics:** Microphones: Pressure operated and pressure gradient type, All types of microphones, Loudspeakers, Baffles and enclosures, Horns, Principles of optical and magnetic recording, Tone controls, PA system, Principles of TV signal generation	08 Hrs

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE)

Text Books:

1. Kennedy & Davis: Electronic Communication Systems, TMH
2. Robert E.Runstein: Modern Recording Techniques, Taraporevala Sons & Co. Pvt. Ltd.
3. R.G.Gupta: Audio and Video Systems, Second Edition, TMH
4. Abrahan Cohen: Hi-Fi Loudspeakers
5. A.M.Dhake: Television and Video Engineering, TMH

Reference Books:

1. B.P.Lathi: Modern Digital and Analog Communication Systems, Oxford Press Publication (Third Edition)
2. Dennis Roddy & Coolen : Electronic Communication, PHI (Fourth Edition)
3. Simon Haykin: Communication Systems, John Wiley & Sons (Fourth Edition)
4. Leon W.Couch: Digital and Analog Communication Systems, Pearson Education (Seventh Edition)

LIST OF PRACTICALS:

1. Study of RF signal generator
2. Determining modulation index of AM wave by using trapezoidal pattern.
3. Study of AM transmitter & receiver
4. Study of FM transmitter & receiver
5. Study of AM demodulator
6. Study of FM demodulator
7. Study/Perform PAM, PWM & PPm
8. Verification of sampling theorem with natural/flat top sampling
9. Study of PCM

Note: Minimum eight experiments shall be performed from the above list

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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

For 80 Marks papers:

1) Minimum 10 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 atleast 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 (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-I

EXD205: DATA STRUCTURE

Teaching Scheme			Examination Scheme			
Theory	:	04 hrs/week	Theory Examination	:	80 Mark	
Practical	:	02 hrs/week	Class Test	:	20 Marks	
			Termwork /Oral	:	50 Marks	

Unit 1 **Introduction to data structure & Advance concepts in 'C'** Introduction to theory of data structures & its data types, Primitive and Non-Primitive data structures, Abstract data structure. Arrays: one dimensional & two dimensional arrays, Arrays as an ADT Insertion, deletion and traversals of arrays. Pointers: Basic concept, Concept of Functions & its types, Structures: Array of structures, passing structure to function, storage classes.	06
Unit 2 **Stacks & Queues** Stack, stack as an ADT, representation using arrays & linked list, Applications of stack, Concept of infix, postfix and prefix expressions .The Queue and its representation, queue as an ADT, Circular Queue, priority queue , Applications of queue	06
Unit 3 **Linked List** Definition, concept, operation on singly linked list, Circular linked lists, doubly linked lists, Operations like insertion, deletion, searching, Updating, Applications of linked lists such as polynomial manipulation, Comparison of singly linked, circularly linked & doubly linked list	08
Unit 4 **Graphs** Definitions, basic terminology, representation & implementation of graphs, graph traversals, DFS, BFS, Shortest path, Spanning tree, Minimum cost spanning trees	06
Unit 5 **Trees** Definition, Basic terminology, operation on binary trees, linked storage representation for binary search trees, Basic operation on binary search tree such as creating a binary search tree, searching, tree traversals ,in-order, pre-order, post-order, tree application for expression evaluation & for solving sparse matrices.	08
Unit 6 **Sorting & searching** Different sorting tech, selection sort, bubble sort, merge sort, quick sort, heap sort, shell sort, radix sort, comparisons between different sorting techniques, Sequential searching, binary Searching, B trees, B+ trees,	06

Text Books:

1) E Balgurusamy - Programming in ANSI C, Tata McGraw-Hill
2) 'Data structure through C' by Yashwant P Kanetkar
3) Principals of Data structure using C and C++ by G.S.Baluja

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Text Books:

1) E Balgurusamy - Programming in ANSI C, Tata McGraw-Hill
2) 'Data structure through C' by Yashwant P Kanetkar
3) Principals of Data structure using C and C++ by G.S.Baluja

Reference Books:

1) Yedidyah Langsam, Moshe J Augenstein, Aaron M Tenenbaum - Data structures using C and C++ - PHI Publications (2nd Edition).
2) Data structure using C by Tanenboum

LIST OF PRACTICALS:

1) Write a 'C' Programme for Merging of two arrays
2) Write a 'C' Programme using function and pointers
3) Write a 'C' Programme to implement stack
4) Write a 'C' Programme to implement Queue
5) Write a 'C' Programme to implement circular link list
6) Write a 'C' Programme to implement graph traversal
7) Write a 'C' Programme to implement binary search tree
8) Write a 'C' Programme to implement merge and quick sort

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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

For 80 Marks papers:

1) Minimum 10 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 atleast 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 (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-I

EXD225: ELECTRONICS WORKSHOP

Teaching Scheme			Examination Scheme		
Theory	:	----	Theory Examination	:	---
Practical	:	02 hrs/week	Class Test	:	---
			Term Work	:	50 Marks

Unit 1

1. **Mini Project:-**

   Students have to select any topic and complete mini project on it. He has to perform PCB designing, component selection, mounting, soldering and testing of mini project.
   It is expected by the student to submit printed report of mini project and deliver power point presentation and demo.

Unit 2

2. **Case Study:-**

   Survey of optoelectronics devices.

Unit 3

3. **Case Study**:-
   Applications of different frequencies in the frequency spectrum.

Unit 4

4. **Case Study:-**

   Students have to study any industry and submit the report regarding the organization processes and activities.

Unit 5

5. **Case Study:-**

   Implementation of small electronic circuit by using circuit simulation tools (eg. Circuit maker, pSpice, multisim, Orcad, etc.)

Reference Books:

1 M. H. Rashid 'Introduction to P-spice using OrCAD for circuits and Electronics' – Pearson Edition
2 User manuals of PROTEL, PROTEUS, OrCAD, Microcap
3 W.C. Bosshart 'Printed Circuit Boards-Design & Technology'–Tata McGraw-Hill Publication

Students are also advised to refer the latest internet search engines for the survey of the different topics of case studies.

Students have to perform following activities under the guidance of subject teacher.
Students have to submit report on case studies. They have to take reference from Internet searching and available reference books.

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-II

BSH252: ENGINEERING MATHEMATICS-IV

Teaching Scheme	Examination Scheme	
Theory : 04 hrs/week	Theory Examination : 80 Mark Class Test : 20 Marks	

Unit 1 **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.	04
Unit 2 **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.	08
Unit 3 **Z Transform:** Definition, Z transform of elementary functions, properties of Z transform, Inverse Z transform, Solution of difference equation by Z transform.	08
Unit 4 **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.	08
Unit 5 **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 .	08
Unit 6 **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. Solutions of one dimensional heat equation by using Fourier transform.	04

Reference Books:

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

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

For 80 Marks papers:

1. Minimum 10 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 atleast 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 (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-II

EXD253: ELECTRONICS DEVICES AND CIRCUITS-II

Teaching Scheme			Examination Scheme		
Theory	:	04 hrs/week	Theory Examination	:	80 Mark
Practical	:	02 hrs/week	Class Test	:	20 Marks
			Practical/Oral	:	50 Marks

Unit 1 **Special Purpose Diodes** Laser diode, Schotty diode, Gunn diode, Tunnel diode, Read diode, IMPATT diode, TRAPATT diode, BARITT diode, CCDs (Construction, Working principle, Characteristics, Applications)	06
Unit 2 **Power amplifier** Introduction, classification of power amplifiers -A, B, AB, C and D, , RC coupled, transformer coupled and direct coupled, Class B push pull and complementary symmetry amplifier, efficiency, calculation of power output, power dissipation, cross over distortion and its elimination methods, need of heat sink and its design , calculation of actual power handling capacity of transistor with and without heat sink, collector dissipation curve and its importance, harmonic distortion in power amplifiers. Introduction to pulse amplifier, need of pulse amplifier, types, ideal pulse amplifier, Response-Time domain and frequency domain,	08
Unit 3 **Differential amplifiers** Introduction, Differential amplifier configuration, DC and AC analysis, Constant current bias, Current mirror circuit, Level shifter, Introduction to operational amplifier (Block diagram) and its features, Ideal characteristics and their significance, case study of IC 741C.	06
Unit 4 **Wave Shaping Circuits** Integrator and differentiator using passive components and their response for sine wave, square wave input. Diode clipper: Positive clipper, Negative clipper, biased clipper. Diode clampers: Unbiased and Biased types.	06
Unit 5 **Multivibrators** Multivibrators: Monostable, Astable, Bistable, Collector coupled and emitter coupled, a fixed bias and self bias transistors binary, commutating capacitors, symmetrical and asymmetrical triggering, Schmitt trigger	06
Unit 6 **Blocking oscillators and time based generator** Transistorize blocking oscillator- base and emitter timing methods for controlling pulse duration of blocking oscillator, diode control and RC control blocking oscillator, applications. Voltage time based generator-General feature of time base signal, methods of generating time based waveform, miller and boot strap time based generator. Current time based generator: A simple current sweep, a transistor current time base generator.	08

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Text Books:

1 A Monograph on electronics Design Principles, N.C.Goyal and R.K.khetan, Khanna Publication.

2 Electronic Devices and Circuits, Theodore F. Bogart, Jeffrey S. Beasley, Guilermo Rico, Pearson publication.

Reference Books:

1) Pulse Digital and Switching Waveform, Millman J and Taub H., Mc Graw Hill International.
2) Electronics Devices and Circuits Theory, Boylestead Nashelsky, PHI Publication.
3) Electronic Devices and Circuits, Theodore F. Bogart, Jeffrey S. Beasley, Guilermo Rico, Pearson publication.
4) Electronic Devices and Circuits, Jacob Millman, Christos halkias, Satyabrata Jit, Mc Graw Hill International.
5) Microwave devices & circuits, Samuel Liao, Printice Hall of India, Third Edition.

LIST OF PRACTICALS:

1. Study of RC integrator and differentiator for sine, square and pulse input.
2. Study of Clipper – positive, negative and biased type.
3. Study of clamper – Biased and unbiased type.
4. Study of transistorized astable multivibrator.
5. Study of transistorized monostable multivibrator.
6. To study of frequency response of RC coupled amplifier.
7. To study of frequency response of transformer coupled amplifier.
8. To study of frequency response of push pull / complimentary symmetry amplifier.
9. Study of Miller and Bootstrap time base generator.
10. Study of transistorized differential amplifier.

Note: Minimum 8 experiments shall be performed and it is advised to conduct on Bread board.

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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

For 80 Marks papers:

1) Minimum 10 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 atleast 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 t solve each having weightage of 15 marks

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-II

EXD254: DIGITAL LOGIC DESIGN

Teaching Scheme			Examination Scheme		
Theory	:	04 hrs/week	Theory Examination	:	80 Mark
Practical	:	02 hrs/week	Class Test	:	20 Marks
			Practical/Oral	:	50 Marks

Unit 1 **Logic Families:** Characteristics of digital IC's, Bipolar logic families: Resistor-Transistor logic (RTL), Direct coupled Transistor logic (DCTL), Integrated Injection logic (I^2L), Diode – Transistor Logic (DTL), High Threshold logic (HTL), Transistor-Transistor logic (TTL), Schottky Transistor-Transistor logic, Emitter Coupled logic(ECL).Unipolar logic Families: PMOS, NMOS, and CMOS. BiCMOS Logic Family, Tri-State Logic.	08
Unit 2 **Combinational logic design:** Standard representation for Logic functions: Sum-of-Products and Product-of-Sums methods. Simplification of Logic functions using Karnaugh Map, Don't care conditions, Quine-McClusky minimization technique, Design examples on Arithmetic building blocks: Half–adder, Full-adder, Half-subtractor, Full-subtractor, the binary adder-subtactor, Binary to Gray and Gray to Binary code converters.	06
Unit 3 **Data-Processing Circuits:** Parallel Adder (IC7483), Arithmetic logic Unit (IC 74181), Multiplexers, Demultiplexers, 1-of-16 Decoder, BCD-to-Decimal Decoders, Seven-segment Decoders, Encoders, Exclusive–OR Gates, Parity Generators and Checkers, Magnitude Comparator, Read - only Memory, Programmable Array Logic, Programmable Logic Arrays. Introduction to HDL	06
Unit 4 **Sequential Logic Circuit:** Flip-Flops: RS, JK, Race around condition, Master-slave JK, D, T. Edge triggered flip-flops, clocked flip-flop design, excitation table, flip-flop conversion, flip-flop characteristics, bounce elimination switch, design of Asynchronous (ripple) counter using flip-flop using IC's, 4 bit up/down counter (positive and negative edge triggered), Shift register (modes of operation), 4-bit bidirectional using D/J-K, universal shift register, application of shift registers (Ring counter, sequence generator, Johnson's counter) IC7495/74195	08
Unit 5 **Synchronous sequential machines:** Design of synchronous counter using ICs, 4 bit up/down, mod N counters, Moore and Mealy machines, representation techniques, state diagram, state table, state reduction, state assignment, implementation using flip-flops, Applications like sequence generator and detection.	06

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Unit 6	
Semiconductor Memories & convertor: Memory organization and operation, Expanding memory size, classification and characteristics of memory, RAM, ROM, EPROM, EEPROM, NVRAM, SRAM, DRAM, flash memory, A to D and D to A convertors.	06

Text Books:

Reference Books:

1. Donald P Leach, Albert Paul Malvino, Goutam Saha "Digital Principles and Applications", Mc Graw Hill
2. R.P. Jain "Modern Digital Electronics", Mc Graw Hill
3. Morris Mano "Digital Logic & Computer Design", Pearson.
4. Ronald J. Tocci, Neal S. Widmer, Gregory L. Moss " Digital Systems, Principles and Applications", Pearson, Tenth Edittion

LIST OF PRACTICALS:

1. Study of basic logic gates.
2. Operation of Arithematic building blocks
3. Study of Arithematic logic unit (ALU IC 74181)
4. Code conversion operations: Binary to Gray, Gray to Binary
5. Multiplexers
6. Demultiplexers, Decoders & Encoders
7. Study of flip-flops: RS, JK, MSJK, D & T.
8. Counter Design
9. Shift registers
10. Study of A to D & D to A Convertors

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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

For 80 Marks papers:

1) Minimum 10 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 atleast 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 (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-II

EXD255: SIGNALS AND SYSTEMS

Teaching Scheme			Examination Scheme			
Theory	:	04 hrs/week	Theory Examination	:	80 Mark	
Practical	:	02 hrs/week	Class Test	:	20 Marks	
			Practical/Oral	:	50 Marks	

Unit 1 **Introduction to Signals:** Definition of signal, Classification of signals: continuous time and discrete time, Analog and digital, periodic and non periodic, deterministic and non deterministic, even and odd, energy and power. Basic signals and operations on signals: cosine, sine, exponential, unit step, unit impulse. ramp, triangular, rectangular, Amplitude scaling, addition, multiplication , differentiation, integration, time scaling, time shifting and folding. Representation of continuous time signals by its sample – Sampling theorem- Reconstruction of a signals from its samples, aliasing – discrete time processing of continuous time signals, sampling of band pass signals.	08
Unit 2 **System**: Definition, types of systems, Classification of CT and DT system: linear and non-linear, Time variant and time invariant, casual and non causal, static and dynamic, Stable and unstable, shift variant and invariant, Invertibility,	06
Unit 3 **System Analysis:** System modeling: input output relation, impulse response, block diagram, integro-differential equations. Introduction to LTI Systems, state space representation, Convolution integral, properties of convolution integral, linear convolution, different methods of convolutions, system properties in terms of impulse response.	06
Unit 4 **CT and DT system analysis using FT** Definition and necessity of CT and DT Fourier series and Fourier transforms. CT Fourier series, CT Fourier transforms and its properties. Problem solving using properties. Limitations of Fourier Transform. Analogy between CT FS and DT FS and its properties. Response of LTI system to exponential signals, periodic signals, application of Fourier series and Fourier transforms to the system analysis.	06
Unit 5 **Correlation:** Definition of correlation and correlogram. Introduction-correlation and correlogram, the correlation function: analogy between correlation and convolution, Conceptual basis, energy signals, power signals, auto-correlation: relation to signal energy and signals power, properties of auto-correlation, Cross-correlation: properties of cross correlation.	06

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Unit 6	
Energy Spectral Density and Power Spectral Density Definition of Spectral density, ESD, Properties of ESD, Physical interpretation of the ESD Numerical on ESD. PSD, Properties of PSD, Correlation, cross correlation and auto-correlation of CT energy signals and its properties. Numerical on PSD. Applications, interrelation between auto-correlation and ESD. Sampling theorem and its proof, effect of under sampling, sampling of band pass signals	08
Text Books:	
Reference Books: 1) Roberts M.J. : Signals and Systems TMH 2) Luider : Signals and Systems 3) B.P.Lathi : Linear Systems and signals 4) Signals and Systems : Y. Ravinder, C.K. Kharate. 5) B.P. Lathi : Signals and Systems 6) Symon hykin : signals and systems 7) I.J.Nagrath : signals and systems (TMH)	
LIST OF PRACTICALS: 1) Program for sampling continuous time signal 2) Program for folding, shifting of digital signal 3) Program to generate impulse, unit step, ramp, sine wave, exponential signals, 4) Program for convolution and correlation 5) Program for compute magnitude and phase spectrum of given signals. 6) Program for Jury's stability criteria 7) Program for circular convolution 8) Program to study the properties of Fourier transform 9) Program for linear convolution using DFT 10) Program to compute impulse response of systems 11) Program to compute even & odd part of given signals 12) Program o compute FFT. **Note**: Minimum eight experiments shall be performed from the above list. It is advised to conduct the practicals. Perform any Ten programs with the help of any computational software like Matlab/ OCTAVE Based experiments.	
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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus. **For 80 Marks papers:** 1) Minimum 10 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 atleast 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 (EC/ECT/E&C/IE) ENGINEERING

SEMESTER-II

EXD256: ELECTRICAL MACHINES AND INSTRUMENTATION

Teaching Scheme			Examination Scheme		
Theory	:	04 hrs/week	Theory Examination	:	80 Mark
Practical	:	02 hrs/week	Class Test	:	20 Marks
			Termwork/Oral	:	50 Marks

Unit 1 **D.C. Machines:** DC Machines, Construction, working principle (motor/generator), EMF equation of generator. Types and applications of DC generators, DC Motors and its characteristics, significance of back emf; applications of DC Motors, speed control methods and starters.	05
Unit 2 **Polyphase induction motors and Synchronous Motors:** Three-phase induction motors, principle of operation, construction, types, Torque equation, Torque-Speed characteristics, power stages, losses and efficiency, speed control, starters and applications. Construction of synchronous machines, principle of operation, starting methods, effect of load, effect of excitation on armature current and power factor, Hunting.	10
Unit 3 **Special Machines:** Working principle and applications of: Stepper motor, variable reluctance motor, FHP motor, Hysterisis motor, repulsion motor, Servomotors (AC and DC).	05
Unit 4 **Sensors and Transducers:** Classification and selection of transducers, Strain gauges, LVDT, temperature transducers, piezoelectric, photosensitive transducers. Need of signal conditioning and types, interfacing techniques of transducers with microprocessors/microcontrollers.	06
Unit 5 **Industrial measurements and Industrial Applications:** Measurement of vibration, Electrical telemetry, thickness, Humidity, thermal conductivity and gas analysis. Emission Computerized tomography. Smoke and fire detection, burglar alarm. Object counter, level measurement, ON/OFF timers, RTC sound level meter, tachometer, VAW meter.	09
Unit 6 **I/O Devices and Displays:** Recorders-X-Y Plotters its applications, Optical Oscillograph, cold cathode display, Florescent display, LED, LCD, Alphanumeric display, Bar graph displays.	05

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD

FACULTY OF ENGINEERING AND TECHNOLOGY

SECOND YEAR (EC/ECT/E&C/IE) ENGINEERING

Text Books:

1) Electrical Machine by Ashfaqu Hussain, Dhanpatrai & Publications
2) Electrical and Electronics Instrumentation and Measurement Technics by A.K. Sawhney, Dhanpatrai Publications

Reference Books:

1. Electrical Technology Vol-II, AC and DC Machines, by B.L.Thereja & A.K.Thereja
2. Instrumentation Devices system, II edition C.S.Ranjan, G.R.Sharma
3. Handbook of polymers in Electronics by B.D.Malhotra

LIST OF PRACTICALS:

A. Experiments (any four)

1. Speed control of DC motor.
2. Load test on DC shunt motor (T/Iq,T/N,N/fq) characteristics.
3. Torque slip characteristics of three phase induction motor.
4. Load test on 3-phase induction motor.
5. Speed control of 3-phase induction motor.
6. Study of different types of starters of induction motor.

B. Experiments (any four)

1. Study of potentiometer displacement transducer.
2. Study of strain gauge.
3. Study of temperature transducers.
4. Study of burglar alarm.
5. Liquid level measurement.
6. Sound level meter.

Note: Minimum eight experiments shall be performed from the above list. It Is advised to conduct the practicals.
Term work shall consist of any eight experiments based on syllabus or from the list.
Assessment: Actual performing in the lab.
Laboratory journal should contain clearly the objectives of the experiment.

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 to equal parts i.e. three units in each part. Question paper shall be set having two sections A and B, as per weightage of units. Section A question shall be set on first part and section B on second part. Question paper should cover entire syllabus.

For 80 Marks papers:

1) Minimum 10 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 atleast 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

BSH 275 *Basics of Communication Skills*

Teaching Scheme
Practical: 2 Hrs/ Week

Examination Scheme
Term Work: 50 Marks

Course Curriculum

Unit I ***Grammar and Usage*** 7 Hrs

- 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 ***Speaking Skills*** 5 Hrs

- 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 ***Listening and Reading Skills*** 3 Hrs

- Active and Passive Listening.
- Note taking tips
- Techniques of reading
- Types and Techniques – skimming and scanning of reading

Unit IV ***Writing Skills*** 5 Hrs

- 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