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.

FACULTY OF ENGINEERING AND TECHNOLOGY

Proposed Revised Structure of SE (Civil)

SUB NO.	SEMESTER -I	CONTACT HRS. /WEEK				EXAMINATION SCHEME				DURATION OF THEORY EXAMINATION
	SUBJECT	L	P	TOTAL	CT	TH.	TW.	P	TOTAL	
BSH201	Engineering Mathematics-III	4	--	4	20	80	-	-	100	3 Hrs
CED202	Strength of Material	4		4	20	80	-	-	100	3 Hrs
CED203	Fluid Mechanics-I	4		4	20	80	-	-	100	3 Hrs
CED204	Surveying-I	4		4	20	80	-	-	100	3 Hrs
CED205	Concrete Technology	4		4	20	80	-	-	100	3 Hrs
CED221	LAB I: Strength of Material	-	2	2	-	-	25	25	50	
CED222	LAB II: Fluid Mechanics	-	2	2	-	-	25	25	50	
CED223	LAB III: Surveying I	-	2	2	-	-	25	25	50	
CED224	LAB IV: Concrete Technology	-	2	2	-	-	50	-	50	
CED225	LAB V: Computer Lab-I	-	2	2	-	-	50	-	50	
	Total	20	10	30	100	400	175	75	750	

SUB NO.	SEMESTER -II	CONTACT HRS. /WEEK				EXAMINATION SCHEME				DURATION OF THEORY EXAMINATION
	SUBJECT	L	P	TOTAL	CT	TH.	TW.	P	TOTAL	
BSH251	Engineering Mathematics-IV	4		4	20	80			100	3 Hrs
CED253	Building Construction &Drawing	4		4	20	80			100	3 Hrs
CED254	Fluid Mechanics-II	4		4	20	80			100	3 Hrs
CED255	Surveying-II	4		4	20	80			100	3 Hrs
CED256	Theory of Structure	4		4	20	80			100	3 Hrs
CED271	LABVI: Building Construction &Drawing		4	4			50	25	75	
CED272	LAB VII: Fluid Mechanics-II		2	2			25	25	50	
CED273	LAB VIII: Surveying-II		2	2			25	25	50	
CED274	LAB IX: Computer Lab-II		2	2			25		25	
BSH275	LAB X: Communication Skill		2	2			50		50	
	Total	20	12	32	100	400	175	75	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

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	
ECE	4. Fourth Year UG	21-30 practical
EXE	5. Fifth Year UG	31-40 Service Courses
ETC		
IEX		41-49 Electives
PED		**Semester-II**
CSE		
CTD		51-70 Theory
COE		71-80 Practical
ITD		
EED		81-90 Service Courses
EEE		91-99 Electives
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 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 ot the following categories of malpractices at Sr. No. 2, to Sr. No.12 in addition to the Punishment prescribed threat)
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 TECHNIOLOGY
Revised Structure for Second Year Civil
Engineering

SUB NO.	SEMESTER -I	CONTACT HRS. /WEEK				EXAMINATION SCHEME				DURATION OF THEORY EXAMINATION
	SUBJECT	L	P	TOTAL	CT	TH.	TW.	P	TOTAL	
BSH201	Engineering Mathematics-III	4	--	4	20	80	-	-	100	3 Hrs
CED202	Strength of Material	4		4	20	80	-	-	100	3 Hrs
CED203	Fluid Mechanics-I	4		4	20	80	-	-	100	3 Hrs
CED204	Surveying-I	4		4	20	80	-	-	100	3 Hrs
CED205	Concrete Technology	4		4	20	80	-	-	100	3 Hrs
CED221	LAB I: Strength of Material	-	2	2	-	-	25	25	50	
CED222	LAB II: Fluid Mechanics	-	2	2	-	-	25	25	50	
CED223	LAB III: Surveying I	-	2	2	-	-	25	25	50	
CED224	LAB IV: Concrete Technology	-	2	2	-	-	50	-	50	
CED225	LAB V: Computer Lab-I	-	2	2	-	-	50	-	50	
	Total	20	10	30	100	400	175	75	750	

SUB NO.	SEMESTER -II	CONTACT HRS. /WEEK				EXAMINATION SCHEME				DURATION OF THEORY EXAMINATION
	SUBJECT	L	P	TOTAL	CT	TH.	TW.	P	TOTAL	
BSH251	Engineering Mathematics-IV	4		4	20	80			100	3 Hrs
CED253	Building Construction &Drawing	4		4	20	80			100	3 Hrs
CED254	Fluid Mechanics-II	4		4	20	80			100	3 Hrs
CED255	Surveying-II	4		4	20	80			100	3 Hrs
CED256	Theory of Structure	4		4	20	80			100	3 Hrs
CED271	LABVI: Building Construction &Drawing		4	4			50	25	75	
CED272	LAB VII: Fluid Mechanics-II		2	2			25	25	50	
CED273	LAB VIII: Surveying-II		2	2			25	25	50	
CED274	LAB IX: Computer Lab-II		2	2			25		25	
BSH275	LAB X: Communication Skill		2	2			50		50	
	Total	20	12	32	100	400	175	75	750	

SE (ALL)

Teaching Scheme   **Examination scheme**

Theory: 4 Hrs/week   **Theory: 80 Marks (3 Hrs)**

                                                     Class Test: 20 marks

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: Linear Differential Equations : Linear Differential Equations with constant coefficients General method, shortcut methods to find particular integral, Homogenous Linea differential equations (Cauchy's & Legendre's form), method of variation of parameters. (6Hrs)

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.   (6Hrs)

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.   (8Hrs)

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 solenoidal vector field.   (6Hrs)

Unit 5: Vector Calculus (Integral calculus): The line integral, Surface integral, volume integral, **Gauss** Divergence theorem, Stoke's theorem, Green's theorem   (6Hrs)

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 . (8Hrs)

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

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 ,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 weight age of 15 marks

CED202: Strength of Materials

Teaching Scheme   **Examination scheme**

Theory: 4 Hrs/week   **Theory: 80 Marks (3 Hrs)**

                                                                        Class Test: 20 marks

Unit 1 : Simple Stresses and Strains

Mechanical properties of different materials, Direct stress, shear stress, complimentary shear stress, their deformations and corresponding strains. Stress-strain relationship, uniaxial loading. Elastic constants and their relationship. Hooke's law. Stress- strain diagrams and their characteristics for mild steel, tor steel and concrete. Factor of safety and working stresses. Temperature stresses for uniform and composite section.   (7 Hrs)

Unit 2: Shear and Bending moment diagrams

Concept of shear force and bending moment. Relationship between bending moment, shear force and intensity of loading. Shear force and bending moment diagrams for simply supported, cantilever, overhanging beams due to concentrated load, uniformly varying load, uniformly distributed load and couples. Bending moment and loading diagrams from given shear force diagram, shear force and loading diagram from given bending moment diagrams.
                          (7 Hrs)

Unit 3

Stresses in beams: Theory of simple bending and pure bending, assumptions, derivation of flexure formula, section modulus, moment of resistance. Bending stresses in solid, hollow and built-up sections, flinched beams.   (4 Hrs)

Shear stresses: Shear stresses in beams, assumptions, derivation of shear stress formula, distribution of shear stress for various cross sections. Maximum and average shear stress for circular and rectangular section.   (3 Hrs)

Unit 4:

Torsion: Theory of torsion and assumptions. Derivation of torsion equation, polar modulus, stresses in solid and hollow circular shaft, power transmitted by shaft.   (4 Hrs)

Strain energy: Concept, expression for strain energy for axially loaded member under gradual, sudden and impact load, shear resilience, strain energy due to self weight, shear, bending and torsion. (3 Hrs)

Unit 5

Principal stresses and strains: Concept of principal planes, principal stresses, normal and shear stresses, resultant stress on oblique plane, magnitude and orientation of principal stresses and maximum shear stress, Mohr's circle method. (4 Hrs)

Direct and bending stresses: Combined direct and bending stresses, concept of core (kernel) of section for rectangular and circular section, application to short column with eccentric loads, chimneys and retaining walls involving lateral force.   (3 Hrs)

Unit 6

Columns and Struts: Axially loaded compression members, short and long column different end condition. Euler's theory and Rankine's theory and IS code formulae. Limitation of Euler's formula, column with initial curvature, laterally loaded struts.

Thin cylinders and spheres subjected to internal pressures.   (5 Hrs)

Reference Books:

1. **Mechanics of Materials** by Pytel and Singer, McGraw hill New Delhi

2. **Mechanics of Materials-Vol-I**, S. B. Junnarkar, Charotar publishers

3. **Mechanics of Materials**, Timoshenko and Gere, Tata McGraw hill New Delhi

4. **Mechanics of Materials**, E. P. Popov, prentice hall of India Pvt. Ltd.

5. **Strength of Materials**, R. K. Rajput, S. Chand

6. **Strength of Materials**, S.Ramamurtham, Dhanpat rai and sons

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 weight age of 15 marks

CED203: Fluid Mechanics -I

Teaching Scheme   **Examination scheme**

Theory: 4 Hrs/week   **Theory: 80 Marks (3 Hrs)**

                                                       Class Test: 20 marks

Unit 1:   Introduction

Scope, Relevance of Fluid Mechanics, Properties of Fluids, Viscosity, Rheology, Ideal Real Fluids, Newtonian and Non Newtonian fluids, Classification of fluids, Simple Numerical

(4Hrs)(Theoretical & Analytical)

Unit 2:   Fluid Statics

a) The basic equation of hydrostatics, concept of pressure head, measurement of pressure (absolute, gauge), application of the basic equation of hydrostatics, simple manometers, differential manometers and precision manometers. Introduction to pressure transducers. Centre of pressure, total pressure on plane and curved surfaces, pressure diagrams, practical applications.

b) Principle of floatation and buoyancy, equilibrium of floating bodies, stability of floating bodies. Metacentre and metacentric height and its determination (experimental & analytical). Relative Equilibrium, uniform linear acceleration, rotation about a vertical axis.

(10Hrs)(Theoretical& Analytical)

Unit 3:   Fluid Kinematics

Fluid in motion, Schools of thoughts of fluid motion, classification of fluid flow, steady, unsteady, uniform, non uniform, laminar, turbulent, rotational, irrotational flows ,Flow net, Applications of flow net, Velocity Potential, Stream Function. Velocity, acceleration, free and forced vortex flow, radial flow

Viscous Flow

Relation between shear stress and pressure gradient, steady laminar flow through circular pipes, Hagen Poisullie's equation, Laminar flow through inclined pipes.

(5 Hrs)(Theoretical & Analytical)

Unit 4:   Fluid Dynamics

Forces acting on fluids in motion, Euler's equation of motion, Cartesian co-ordinates along streamline. Bernoulli's equation, Momentum equation, Kinetic and Momentum correction factors   **(8 Hrs)(Theoretical & Analytical)**

Unit 5: Measurement of Flow

Various instruments used for measuring flow like Venturimeter, Pitot tube. Orifices and Mouthpieces, Notches and Weirs

(8Hrs) **(Theoretical & Analytical)**

Unit 6:   Boundary Layer Theory

Concept of Boundary Layer, Thickness of Boundary Layer, types of boundary layer, separation of boundary layer. Forces on immersed bodies in flowing fluids, General Equations, lift, drag, aerofoil, Magnus Effect

(4 Hrs) **(Theoretical & Analytical)**

Reference Books:

1 Hydrulics and Fluid Mechnics Modi & Seth Standard Book House

2 Fluid Mechanics and Hydraulic Machines R.K.Bansal Laxmi Publications

3 Fluid Mechanics and Hydraulic Machines S. Ramamrutham Dhanpatrai Publications

4 Fluid Mechanics V.L. Streeter &E.B. Wylie TMH

5 Flow through open chanel Subramanyam

6 Fluid Mechanics and Hydraulic By Dr. S. K. Ukarande, Ane Books Pvt. Ltd.

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 weight age of 15 marks

CED204: Surveying-I

Teaching Scheme   **Examination scheme**

Theory: 4 Hrs/week   **Theory: 80 Marks (3 Hrs)**

                                                             Class Test: 20 marks

Unit 1 : Chain & Compass Traversing

Chaining a Line, Errors in Chaining, Tape correction , Offsets, Methods of Locating objects., Instruments For Setting out right angles, Cross Staff Survey, Prismatic And Surveyor's Compass. Local attraction & Correction of Bearings, Magnetic Declination. Calculation of True Bearings, Sources Of Errors .   **(06hrs)**

Unit 2: Leveling

Definitions, Construction details of Dumpy Level ,Bench Marks, Fundamental Lines, Temporary & Permanent adjustments, Balancing of Back Sight & Fore Sight Distances. Simple & Differential Leveling, Reciprocal leveling, Reduction of Levels, Classification of Leveling , Errors & Precision in Leveling , Effect of Curvature & Refraction, Contouring, Characteristic of Contour lines and its uses, Methods of contouring, Interpolation of contours**.**
                                                             (10hrs)

Unit 3: Plane Table Survey

Introduction, accessories used in Plane Table Survey, adjustments of Plane Table. Methods of Plane Table and their suitability , Two Point And Three Point Problems and their solutions.
                                                             (04hrs)

Unit 4: Theodolite

Construction , Types – Transit , Non Transit , Vernier and Micro Optic Theodolite, Temporary And Permanent Adjustments, Measurement of Horizontal angles by various methods, Measurement of Direct and Deflection Angles, Measurement of Vertical angle, Traversing with Theodolite. Direct Observations of angles and bearings, Checks in closed traverse. Calculations of bearings from angles, traverse computations, balancing the traverse, Gale's Traverse Table, & Computations of area of a closed traverse by different methods, Sources of Errors.
                                                             (12hrs)

Unit 5: Computation of Area And Earth Work

Planimeter – Theory and Use , Area of Cross Level, Two Level, Three Level, Three Level Side , Side Hill Two Level and Multi Level Section, Prismoidal and Trapezoidal formula for volume

calculations,Prismoidal Correction, Volume of Cut & fills of road, Haulage and lifts mass diagrams for economic grade line.   **(4hrs)**

Unit 6: **Tachometric Surveying**

Introduction, instruments, methods of tachometry, principle of stadia method, determination of tachometric constants, Analytic lens, horizontal and inclined sights, vertical and normal staff, Beaman Stadia Arc, Auto reduction tachometer, Tachometric contouring, errors.

(4hrs)

Recommended Books
1. **Surveying and Leveling Vol. I & II** - By Prof. T.P. Kanetkar and Prof. S.V. Kulkarni, Pune   Vidyarthi Griha Prakashan Pune
2. **Surveying Vol. I & II** - By Dr. B.C. Punmia, Laxmi Publications Pvt. Ltd, New Delhi
3. **Surveying and Leveling Vol. II** - By Hussain & Nagraj
4. **Surveying** - By David Clark
5. **Surveying** - By Norman Thomas

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 weight age of 15 marks

CED205: Concrete Technology

Teaching Scheme   **Examination scheme**

Theory: 4 Hrs/week   **Theory: 80 Marks (3 Hrs)**

                                                         Class Test: 20 marks

Unit 1: Iintroduction to concrete as a construction material   **(08 hours)**

a) Cement – Introduction to manufacture of Portland cement, ingredients of cement, hydration of cement, types of cement, tests on cement. Different types of Pozollanic materials (Fly ash, Rice Husk ash, Metakaolin), their properties.
b) Aggregate and water – classification, mechanical properties, physical properties, deleterious materials, soundness, alkali-aggregate reaction, sieve analysis: fineness tests on aggregates, artificial and recycled aggregate, Quality of water required for mixing and curing, tests on water. Use of sea water in making concrete
c) Admixture –Modern concrete admixtures and constructions chemicals, plasticizers, super plasticizers, retarders, accelerators, air entraining agents , water proofing materials functions, IS: specifications (9103 and 456), compatibility of admixture.

Unit 2: Properties, Production and Placement of Concrete   **(06 hours)**

a) Fresh concrete: workability – factors affecting workability, cohesion and segregation, bleeding, workability tests, mixing- handling, placing and compaction of concrete, curing methods, time- strength relationship
b) Hardened concrete: strength of concrete, factors affecting strength, micro-cracking and stress-strain relationship, strength properties and factors affecting them, relation between tensile and compressive strengths, impact strength, abrasion resistance, elasticity and creep, shrinkage and swelling.

Unit 3: Testing of Concrete and Formwork   **(06 hours)**

a) Testing of concrete: Destructive and Non destructive testing: Compressive and tensile strength test, Pullout test, Rebound hammer, Ultrasonic pulse velocity
b) **Formwork**: Types, basic members in form work and principles of design.

Unit 4: Concrete Mix Design   **(06 hours)**

Concepts of Mix Design, Factors affecting proportioning, Factors to be considered,
Statistical quality control, Methods of Mix Design by IS 10262, ACI and BS codes, Mix design of High strength Concrete by ACI method, Factors affecting high strength concrete.

Unit: 5 Special Concretes and Special Concreting Techniques   **(08 hours)**

a) Introduction to concrete related equipment: batching plants, hauling, pumps, mixers and vibrators

b) Special concrete: light weight concrete, polymer concrete, types of fibers, fiber reinforced concrete, high density concrete, self compacting concrete and applications.

c) Special concreting techniques: pumping of concrete, under water concreting, ready mixed concrete, roller compacted concrete .

d) Use of wastes in concrete such as plastics, Fly ash, RHA, glass, etc.

Unit: 6 Deterioration and repairs.   (06 hours)

a) Deterioration: permeability and durability, chemical attack and sulphate attack by seawater, acid attack, chloride attack, carbonation of concrete and its determination, corrosion of reinforcement.

b) Repairs: symptoms and diagnosis of distress, evaluation of cracks, selection of repair procedure, repair of defects, common types of repairs.

Text/Reference Books
1. **Concrete** by Mehta and Monteiro, Mcgraw Hill Publications.
2. **Concrete** by Mindess,Young and Darwin, Prentice Hall Publications.
3. **Concrete Technology** by M. L. Gambhir, Tata Mcgraw Hill Publications.
4. **Concrete Technology** by M.S. Shetty, S. Chand Publications.
5. **Concrete Technology** by A R Santhakumar, Oxford University Press.
6. **Handbook on Non- Destuctive Testing of Concrete** by Malhotra and Carino, RC Press.
7. **Properties of concrete** by A. M. Neville, Longman Publishers.
8. **Concrete Technology** by R.S. Varshney, Oxford and IBH.
9. **Concrete Technology** by A M. Neville, J.J. Brooks, Addision Weslley.
10. **Engineered Concrete** by Irving Kett, CRC Press

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 weight age of 15 marks

BSH251: Engineering Mathematics-IV

(MECH/PROD/CIVIL)

Teaching Scheme	Examination scheme
Theory: 4 Hrs/week	**Theory: 80 Marks (3 Hrs)**
	Class Test: 20 marks

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: 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. (7Hrs)

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.   (7Hrs)

Unit 3: Application of PDE
Solutions of partial differential equation by method of separations of variables, Application to vibration of string, one dimensional heat flow equations, Laplace equation in   two dimensions with boundary conditions.   (6Hrs)

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.
                                                                                    (6Hrs)

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 .   (6Hrs)

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. Solution of one dimensional heat equation by using Fourier transform.

(8Hrs)

Note: All Theorems are without proofs

Section A: Unit 1, 2, 3

Section B: Unit 4, 5, 6

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 ,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 weight age of 15 marks

CED253: Building Construction & Drawing

Teaching Scheme

Theory: 4 Hrs/week

Examination scheme

Theory: 80 Marks (3 Hrs)

Class Test: 20 marks

Unit 1: Introduction

Definition, types of buildings as per National Building Code, components of buildings and their functions, Types of structure – load bearing structure & framed structures, their relative advantages & disadvantages, load bearing walls- applications, advantages, materials required and construction procedure. Partition walls- applications, advantages, materials required and construction procedure, HDPE Wall panel. (6 Hrs)

Unit 2: Functional planning of building

Principles of Building Planning- Aspect, Prospect, Roominess, Orientation, circulation, grouping of areas, privacy, Economy, etc. Concept and design of Energy efficient buildings. Relevant knowledge of Building Bye Laws. Requirements for preparation of Line Plan, Working Drawings (Plan, Elevation & Section) & Submission drawings (with Area calculations)

(8 Hrs)

Unit 3: Foundation

Definition and necessity, loads on foundation, Bearing Capacity of soil, SBC values based on IS code. Types of foundation – shallow foundation & deep foundations for buildings, spread footings for walls & columns, Raft foundations, Foundations in black cotton soils, pile foundation, precautions to be taken & Causes of failure of foundations. Underpinning. Setting out foundations, excavation for foundations. (6 Hrs)

Unit 4: Special Aspects of Construction

Waterproofing techniques, damp proofing – causes of dampness, its effects, various methods of damp proofing, material used for damp proofing, details of cavity wall construction. Termite Proofing, Fire proof construction – Points to be observed during planning & construction. Fire protection requirements for multistoried building. Sound proof Construction – Sound absorbents and their characteristic, factors affecting the acoustical design of an auditorium. Joints – Expansion & construction joints necessity, details of expansion joint at foundation level & roof

level of load bearing structure and framed structure. Provision of construction joints in slabs, beams & columns   (10 Hrs)

Unit 5: Building components and their basic requirements

Foundations, plinth, walls and columns in superstructure, floors, doors & windows, sills, lintels and weather sheds, roofs & Toilets. Stairs – Function, technical terms, criteria for location, types of staircases, their suitability, principle of stair layout & its design. Lifts, Ramps & Escalators-their suitability.

                                                                                               (4 Hrs)

Unit 6: Miscellaneous

Safety in construction: safety on site, storage of materials, construction safety, prevention of accidents, Introduction to repairs and retrofitting in buildings. Shoring- Purpose, types, suitability, Scaffolding- Purpose, types, suitability. Wall cladding: materials, methods, wall papering and glazing work. (6 Hrs)

Recommended Books

1. **Building Construction** - B.C.Punmia
2. **The Text book of Building Construction** – S.P. Arora & S.P. Bindra.
3. **Principles of building drawing** - M.G. Shah & C.M. Kale
4. **Building construction** - Sharma & Kaul
5. **Construction Engineering** - Y. S. Sane
6. **Building Construction (Vol. I, II & III)** - W.B. Markay
7. **National Building Code of India**: S.P. 7

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 weight

age of 15 marks

CED254: Fluid Mechanics -II

Teaching Scheme

Theory: 4 Hrs/week

Examination scheme

Theory: 80 Marks (3 Hrs)

Class Test: 20 marks

Unit 1: Turbulent Flow & Flow Through Pipes

a) Characteristics of flow, instantaneous velocity, temporal mean velocity, scale of turbulence and intensity of turbulence, Prandtl's mixing length theory, velocity distribution in turbulent flow.

b) Flow through pipes: energy losses in pipe flow(major losses and minor losses), Darcy Weisbach Equation, variation of friction factor for laminar flow and for turbulent flow, smooth and rough, Nikuradse's experiments on artificially roughened pipes, friction factor for commercial pipes, Moody's diagram, explicit equation for friction factor, flow through pipes such as simple, compound, series parallel, branched pipes, equivalent pipes, siphon, three reservoir problems under steady state, flow through nozzle, power transmission.

(8 Hrs) (Theoretical & Analytical)

Unit 2:Flow Through Open Channels

Classification of channels, Steady and unsteady flow in open channels, uniform and nonuniform flows, laminar and turbulent flows, gradually and rapidly varied flows. Velocity distribution in open channels. Geometric shapes of channel sections and their expressions, economic channel sections, basic equations of fluid flow i.e. continuity equation, momentum equation, Bernoulli's equation applied to channel flow, Chezy's and Manning's equations, specific energy diagrams, alternate depths, Froude number, specific force, critical flow. Non uniform flow in channels, gradually varied flow,(GVF),slope profiles, computation of GVF by direct step method, measurement of flow in channels, standing wave flume, venturiflume. Rapidly varied flow, hydraulic jump, energy dissipation.   (8 Hrs) (Theoretical & Analytical)

Unit 3: Dimensional analysis
Dimensions of physical quantities, dimensional homogeneity, dimensional analysis using Rayleigh method & Buckingham's π theorem method, similitude, important dimensionless parameters, Reynold's No., Froude No. and their significance, scale factors **(4 Hrs)**

Unit 4:

Impact of Jets

Dynamics of force, momentum, impulse momentum equation, jet force on stationary and moving flat & curved vanes, jet propulsion,

Turbines

Classification of turbines, impulse and reaction turbines, components and their functions, efficiency and characteristics of turbines, specific speed unit speed ,unit power, unit discharge, selection criterion for turbines, cavitation, draft tube, runway speed, surge tank.

(8 Hrs) (Theoretical & Analytical)

Unit 5:

a) Centrifugal Pumps

Components, types, construction, principle of working, efficiencies, characteristic and specific speed under various operation conditions, priming of pumps, self priming, cavitations, multistage centrifugal pumps

b) Reciprocating Pumps:

Types, working principle, indicator diagram, work done , effect of acceleration and frictional resistance, slip separation in suction and delivery pipes ,air vessel and its function, multi cylinder pumps.

(10Hrs) (Theoretical & Analytical)

Unit 6: Hydraulic Machines

Hydraulic ram, hydraulic accumulator, hydraulic crane,hydraulic intensifier, press jack fit,

(2 Hrs) (Theoretical & Analytical)

Recommended Books

1 Hydrulics and Fluid Mechnics Modi & Seth Standard Book House

2 Fluid Mechanics and Hydraulic Machines R.K.Bansal Laxmi Publications 4th

3 Fluid Mechanics and Hydraulic Machines S. Ramamrutham Dhanpatrai Publications 8th

4 Fluid Mechanics V.L. Streeter &E.B. Wylie TMH 3rd

5 Flow through open chanel Subramanyam

6 Fluid Mechanics and Hydraulic By Dr. S. K. Ukarande, Ane Books Pvt. Ltd.

Section A-Unit I, II, III

Section B-Unit IV, V, VI

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

weight age of 15 marks

CED255: Surveying - II

Teaching Scheme   **Examination scheme**

Theory: 4 Hrs/week   **Theory: 80 Marks (3 Hrs)**

                                                       Class Test: 20 marks

Unit 1: Geodetic Surveying

Methods in geodetic surveying, Triangulation figures, classification of triangulation systems, selection of stations, Intervisibility between stations and height of stations, towers, signal, and their classification, phase of signals, Measurements of angles, Instruments used, Methods of observation of angles, satellite station and reduction to center , Eccentricity of signals , Base line measurements , Apparatus used , base net, correction to base line measurement**.**

(08Hrs)

Unit 2: Triangulation Adjustments

Kinds of Errors, Laws of Weights, Determination of the most probable values of quantities, the method of least square, indirect observations on independent quantities, normal equation, conditioned quantities, the probable error and its determination, Distribution of errors to the field measurements, method of correlates, station adjustment and Figure adjustment, Adjustment of a geodetic triangle, figure adjustment of a triangle, calculation of spherical excess, computation of the sides of a spherical triangle. Adjustment of a geodetic quadrilateral, adjustment of a quadrilateral with a central station by method of least squares

(08Hrs)

Unit 3: Engineering Surveys

Setting out work – building, culverts, bridges and tunnels, transferring the alignment underground,   Route surveys, city surveying and topographical surveys.

(4Hrs)

Unit 4 : Curves

Introduction, Degree and radius of curves, Horizontal and vertical curves. Types: Simple, Compound, Reverse and Transition curves, Geometry of simple curve, compound curve. Setting out of curves by offsets and angular measurements. Transition Curve: Elements of transition curve, Types of transition curve, Object of introducing transition curves, Relation between length to radial acceleration, Super elevation, Ideal transition curves, Cubic parabola, spiral and Lemniscates   as   transition   for   road   and   railway   curves.

(12 Hrs)

Unit 5: Trigonometrical Leveling

Indirect leveling, leveling on steep ground, Single plane and double plane methods, curvature and refraction, Axis signal correction, difference of elevation of two station by single and reciprocal observations.

(4Hrs)

Unit 6 : Use of Electronics in Surveys

Electromagnetic waves and their properties, phase comparison, Modulation, types of Electronic distance measurement instruments, the Geodemeter , the Distomat, Total Station**.**

(4Hrs)

Recommended Books
1) Surveying and Leveling Vol. I & II - By Prof. T.P. Kanetkar and Prof. S.V. Kulkarni, Pune Vidyarthi Griha Prakashan Pune
2. Surveying Vol. I & II - By Dr. B.C. Punmia, Laxmi Publications Pvt. Ltd, New Delhi
3. Surveying and Leveling Vol. II - By Hussain & Nagraj
4. Surveying - By David Clark
 5. Surveying - By Norman Thomas

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 weight age of 15 marks

CED256: Theory of Structure - I

Teaching Scheme

Theory: 4 Hrs/week

Examination scheme

Theory: 80 Marks (3 Hrs)

Class Test: 20 marks

Unit 1:

Riveted & Welded connections: Riveting, Bolted joints, types of riveted & bolted joints, failure of riveted joint, strength of riveted joints, design of riveted joints for axially loaded member, design of fillet weld and butt weld.

Eccentric connection: Riveted joint subjected to moment action in plane of the joint, design of eccentric connection. (6 Hrs)

Unit 2

Curvature, slope and deflection: Curvature, slope and deflection of statically determinate beams, cantilevers, propped cantilevers, macaulay method, moment area method and conjugate beam method. (4 Hrs)

Deflection of statically determinate structures: Castigliano's theorem, Deflection of beams and frames by strain energy, deflection of pin jointed trusses, effect of temperature change, willot diagrams. (6 Hrs)

Unit 3

Fixed beams: Relation between free bending moment diagram and Fixed bending moment diagram Beams with different moment of Inertia, effect of sinking of support. (4 Hrs)

Unit 4

Continuous beams: Calpeyrons theorem of three moments, beam with diff MI, effect of sinking of support. (4 Hrs)

Unit 5

Rolling Loads and Influence lines for statically determinate structure: Rolling Loads and Influence line for statically determinate structure for reaction, bending moment and shearing

force for cantilevers and simple and compound beams. Criteria for maximum bending moments and maximum shearing force for simple determinate beams. (8 Hrs)

Unit 6

Three hinged Arches: Determination of horizontal thrust, bending moment radial shear and normal thrust, for parabolic and segmental three hinged arches. (4 Hrs)

Three hinged suspension bridge: Simple suspension cable, anchor cable, suspension bridge with three hinged stiffening girder Influence line diagram for horizontal reaction at cable support and for bending moment and shearing force at a given section in three hinged stiffening girder. (4 Hrs)

Recommended Books

1. **Analysis of Structures (Vol. 1 and Vol. 2)**   Vazirani and M.M. Ratwani
2. **Theory of Structures**   S. Ramamurthum
3. **Theory of Structures**   Timoshenko and Young
4. **Theory and Analysis of Structures (Vol. 1 and Vol. 2)**   Jain and Jain
5. **Mechanics of Structures (Vol. 1 and Vol. 2)**   S. B. Junnerkar

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 weight age of 15 marks

CED221 LAB I: Strength of Materials

Teaching Scheme   **Examination Scheme**

Practical: 2 Hrs /week   **Term work: 25 marks**

                                                          Oral Examination: 25 marks

Term Work: The term work shall consist of Experiments given below (any seven):

1. Tension test on mild steel bar
2. Bending test on mild steel
3. Shear test on mild steel
4. Brinell hardness test (three metal specimens), Rockwell hardness test on mild steel
5. Izod and Charpy impact test on any three metals
6. Torsion test on mild steel bar
7. Bending test on Timber
8. Flexure test on flooring tiles
9. Water absorption and compression test on burnt bricks

The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

Oral Examination:-

The practical examination shall consists of performing an exercises based on the practical work done during the course. The record of the exercises submitted by the candidate and viva – voce on the syllabus. The assessment will be based on

1) Performing an exercise
2) Record of exercise submitted by the candidate.

CED222 LAB II: Fluid Mechanics –I

Teaching Scheme   **Examination Scheme**

Practical: 2 Hrs /week   **Term work: 25 marks**

                                                      Oral Examination: 25 marks

Term Work: The term work shall consist of Experiments given below (any seven):

1. Study of pressure measuring devices

2. Determination of metacentric height

3. Verification of Bernoulli's equation.

4. Callibration of Venturimeter.

5. Determination of coefficient of discharge for an orifice.

6. Determination of coefficient of discharge for a mouthpiece.

7. Callibration of rectangular notch/ triangular notch.

8. Determination of Reynold's Number.

The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

Oral Examination :-
The practical examination shall consists of performing an exercises based on the practical work done during the course. The record of the exercises submitted by the candidate and viva – voce on the syllabus. The assessment will be based on

1) Performing an exercise
2) Record of exercise submitted by the candidate.

CED223 LAB III: SURVEYING – I

Teaching Scheme   **Examination Scheme**

Practical: 2 Hrs /week   **Term work: 25 marks**

                                                     Oral Examination: 25 marks

Term Work: **(A)** The term work shall consist of Experiments given below (any seven):

1. Measuring of Bearings of Traverse Lines , Calculations of Included Angles & Check
2. Study of Dumpy Level and Reduction of Levels
3. Profile , Fly, Differential and Check Leveling
4. Study and use of Plane Table Survey by Radiation & Intersection
5. Measurements of Direct , Deflection Angle & Magnetic Bearing with the Theodolite
6. Measurement of Horizontal and Vertical angle by Simple Method. Face Left and Face Right observations.
7. Measurement of Horizontal Angle by Repetition and Reiteration Method.
8. Determining distance and reduce level of elevation point by Tacheometric observations.

(B) PROJECT: All are Compulsory

1. Block Contouring
2. Road Project
3. Theodolite Traverse

The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

Practical Examination:-
The practical examination shall consists of performing an exercises based on the practical work done during the course. The record of the exercises submitted by the candidate and viva – voce on the syllabus. The assessment will be based on
  1) Performing an exercise
  2) Record of exercise submitted by the candidate.

CED224 LAB IV: Concrete Technology

Teaching Scheme   **Examination Scheme**

Practical: 2 Hrs /week   **Term work: 50 marks**

Term Work: Term Work shall consist of following experiments

1. Fineness, initial and final setting time, normal consistency, soundness and compressive strength of cement.
2. Specific gravity and density, sieve analysis, flakiness and elongation, moisture content, Impact Value and crushing Value of aggregate.
3. Workability of concrete by slump test, compaction factor, Vee Bee test, effect of admixture and retarders on setting time concrete.
4. Compressive and tensile strength of hardened concrete, Rebound hammer test.
5. Concrete mix design by IS code method and ACI method

 The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

CED225 LAB V: COMPUTER   LAB – I

Teaching Scheme   **Examination scheme**

Practical: 2 Hrs /week   **Term work: 25 marks**

   Term Work:

A. Introduction to AutoCAD: Basic Drawing commands

1. Draw Commands   : Line, Polygon, Rectangle, Circle, Ellipse.
2. Edit Commands   : Erase, Copy, Mirror, Offset, Extend, Array, Move, Rotate, Scale,
3. Coordinate Entry   : X,Y,Z, coordinate entry system, Angular measurement,

   Angular measurement, Absolute Coordinate entry, Relative

   coordinate's entry, And Polar coordinate entry system.
4. Osnap   : Endpoint, Intersection, Nearest, Midpoint, Tangent, Center.
5. Qnew/Open/Save/Exit   : Qnew, Open, Save, Exit
6. Layers   : Create new layer, Assign layer color, Assign layer linetype.
7. Dimensioning   : Using dimensions
8. Text in A Drawing : Dtext, DDedit, MText, Medit
9. Zoom Commands   : Zoom realtime, Zoom window, Zoom previous, Zoom all, Pan

   Realtime.
10. View ports   : Aerial View, Named View, Tiled View ports.
11. Typical Drawing Setup   : Ortho, Snap, Units, Limits, Zoom all, Set Layers,

   Ltscale, Text Style, LWT, Undo/Redo
12. Plot Command   :

B. The following assignments need to be submitted on A-3 size sheet.

1. Assignment No. 1—Drawing 2-D Objects like Rectangle, Circle, and Ellipse.
2. Assignment No. 2 – Drawing 2-D Line Plans of Buildings.
3. Assignment No. 3 – Drawing 2-D Double line plans for Buildings.
4. Assignment No. 4 – Drawing Foundation Plan for above building.
5. Assignment No. 5—Drawing detailed section of Staircase & Toilet.

   The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

CED271 LAB VI: BUILDING CONSTRUCTION & DRAWING

Teaching Scheme   **Examination Scheme**

Practical: 2 Hrs /week   **Term work: 50 marks**

                                                        Oral Examination: 25 marks

Term Work:

Part- I

1) Measured drawing (including site visit)- drawn to suitable scale on Full Imperial sheet.

2) Data drawing (G+1) Residential Bungalows Plan- drawn to Suitable scale on Full Imperial sheet.

3) Details of Data Drawing- Location Plan, Block Plan, Septic Tank details, Compound wall details

4) Submission drawing of Data drawing

Part–II

  1) Preparation of working drawing plans in suitable scale for 1, 2 & 3 BHK flats, Bungalow and

   Apartment (G+3) Building.

  2) Sketches – Shoring, Underpinning, scaffolding, Partition walls, Damp proofing courses,

      thermal insulations, air conditioning system, ventilations.

  3) Preparation of above drawings by AutoCAD (Part I)

   The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

 Oral Examination:-
The practical examination shall consists of performing an exercises based on the practical work done during the course. The record of the exercises submitted by the candidate and viva – voce on the syllabus. The assessment will be based on
   1) Performing an exercise
   2) Record of exercise submitted by the candidate.

CED272 LAB VII: FLUID MECHANICS -II

Teaching Scheme   **Examination Scheme**

Practical: 2 Hrs /week   **Term work: 25 marks**

                                                              Oral Examination: 25 marks

Term Work: The term work shall consist of Experiments given below (any seven):

1. Determination of Chezy's and Manning's constants

2. Determination of co-efficient of discharge for venturi-flume /standing wave flume

3. Determination of pipe friction factor.

4. Determination of minor losses.

5. Study of hydraulic jump.

6. Impact of Jet.

7. Trial on turbine.

8. Trial on centrifugal pump.

9. Trial on reciprocating pump.

   The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

Oral Examination

The practical examination shall consists of performing an exercises based on the practical work done during the course. The record of the exercises submitted by the candidate and viva – voce on the syllabus. The assessment will be based on
  1) Performing an exercise
  2) Record of exercise submitted by the candidate.

CED273 LAB VIII: SURVEYING – II

Teaching Scheme   **Examination Scheme**

Practical: 2 Hrs /week   **Term work: 25 marks**

                                                                    Oral Examination: 25 marks

Term Work: (A) The term work shall consist of Experiments given below (any seven)

1. Setting out simple circular curve by offset from long chord method.
2. Setting out simple circular curve by offset from chord Produced.
3. Setting out simple circular curve by Rankine's method.
4. Measurements of base line by subtense bar method.
5. Satellite station and reduction to center
6. Study of one second Theodolite and measurement of horizontal angle by repetition method.
7. Study of Nautical sextant and measurement of angle by nautical sextant.
8. Determination of elevations and distances by Trignometrical observations

(B) Projects : - Any Two
1) Tachometric contouring.
2) Geodetic Quadrilateral Adjustments
3) Setting out building / culvert.

The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

Oral Examination

The practical examination shall consists of performing an exercises based on the practical work done during the course. The record of the exercises submitted by the candidate and viva – voce on the syllabus. The assessment will be based on

1) Performing an exercise
2) Record of exercise submitted by the candidate.
3) Viva – voce on the syllabus.

CED274 LAB IX: Computer LAB-II

Teaching Scheme   **Examination scheme**

Practical: 2 Hrs /week   **Term work: 25 marks**

Following is the suggested list of the exercise for the subject **Computer Lab - II** and should solve by writing programs in 'C' language. The program should be error free and desired output should be obtained

1. **Survey - II**: Two problems each from section – A & section - B of survey -II

2. **F.M- II**: Two problems each from section - A & section - B of F.M- II

3. Exercises to be taken on Numerical methods:

   a) Newton Raphson Method

   b) Lagrange's Interpolation Formula

   c) Solution of simultaneous equation by Gauss Elimination

   d) Fourth order Runge Kutta Method

   The assessment of term work shall be done on the basis of the following:

- Continuous Assessment
- Performing the experiment given in Laboratory

BSH 275 LAB X: Communication Skill

Teaching Scheme: **Examination scheme**

Practical: 2Hrs /week   **Term work: 50 marks**

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