

College of Engineering & Technology, Bengal

PROSPECTUS

Agriculture SECTION 1951-52

P.O. JADAVPUR COLLEGE, 24 PARGANAS, BENGAL

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PROSPECTUS

COURSES OF STUDY

The College offers :

1. Post Graduate Courses in Electrical, Mechanical and Chemical Engineering, leading to the degrees of Master of Electrical Engineering (M.E.E.), Master of Mechanical Engineering (M.M.E.) and Master of Chemical Engineering (M.Ch.E.) respectively. Minimum requirement of attendance for these courses is one year.
2. Degree Courses in Electrical, Mechanical and Chemical Engineering, leading to the Degrees of Bachelor of Electrical Engineering (B.E.E.), Bachelor of Mechanical Engineering (B.M.E.) and Bachelor of Chemical Engineering (B.Ch.E.) respectively. Each of these is a four years' course.
3. An Overseer Course of three years.
4. An Agriculture Course of two years.

ADMISSION REQUIREMENTS

1. ADMISSION TO THE POST GRADUATE COURSES :

Honours Graduates in Electrical, Mechanical and Chemical Engineering of recognised universities and engineering graduates engaged in teaching work in this College for a period of at least two years are eligible for admission into these Courses.

2. ADMISSION TO THE DEGREE COURSES :

Students who have passed at least the I.Sc. or equivalent Examination in the First or Second Divisions of any recognised University with Physics, Chemistry and Mathematics and those who have passed the B.Sc. Examination with Physics, Chemistry and Mathematics of any recognised University are eligible for admission into the Engineering First Year Class of any of the



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three Degree Courses. The Pre-Engineering Examination of the Delhi Polytechnic Institute which has been recognised by the Calcutta University as equivalent to their I.Sc. Examination, is recognised for purposes of admission into the Degree Courses of this College.

Candidates for the B.M.E. and B.E.E. degrees after obtaining one of the above degrees will be required to study for two years before they are allowed to go up for the examination for the other Degree subject.

The age of candidates who have passed the B.Sc. and I.Sc. Examinations must not exceed 22 and 20 years respectively on the date of admission, minimum age being 17 years.

3. ADMISSION TO THE DIPLOMA COURSES :

The Overseer Course.

The Agriculture Course.

The minimum qualification for any candidate for admission into any one of the courses mentioned above is that he has passed the Matriculation Examination of any recognised University or the Final School standard Examination of the National Council of Education, Bengal, or any other School Final Examination of equivalent standard.

ADMISSION PROCEDURE

Candidates seeking admission into the College for any of the Courses should apply to the Principal giving particulars required in the printed Admission Form obtainable on application from the College Office.

The Admission Form, duly filled in, must be submitted with a Registration Fee of Rs. 5/- for the Degree Courses and Rs. 4/- for Diploma Courses by the 30th of April.

Application forms must be properly filled in. Incomplete or irregular applications will not be entertained.

Registration of name does not confer any right on the applicant for being called for interview ; a candidate is called for interview only when the Selection Board deem that an interview is warranted. Registration fee is not refunded under any circumstances.

Candidates selected for interview and coming from outside stations are informed that selection for interview is no guarantee, nor even a formal promise, that they will be selected for admission. Candidates are selected for admission when they can satisfy the Selection Board.

Candidates selected for interview will be informed at what time they are to appear before the Selection Board. Candidates not selected for interview will also be informed that they have not been selected ; the Selection Board will not give any cause or explanation for not selecting any Candidate.

Interview cards are generally issued from this office by the middle of June or earlier or later according to the time of publication of the results of the I.Sc. Examination of Calcutta University. The College does not assume any responsibility for postal transit troubles, viz., delay or non-delivery.

Applicants must communicate to this office the results of the examination, at which they appeared last, as soon as they are published if not previously communicated. Certificates of any description (original or copy) excepting University Certificates, will not be returned. Only copies are to be sent.

A written test examination will be held for candidates of West Bengal for admission into the First Year Classes of the Degree Courses of the College, on the knowledge of graphical solution of numerical problems on Statics and Dynamics as prescribed in the syllabus for I.Sc. Examination of the Calcutta University.

Only the candidates who have passed the I.Sc. or equivalent examination with Physics, Chemistry and Mathematics in the 1st or 2nd Division or who have passed the B.Sc. Examination with Physics, Chemistry and Mathematics, will be allowed to sit for the Admission Test Examination.

Equal weightage will be given to the result of the Admission Test and to the result of the last examination in which the candidate appeared.

Interview will be granted to students strictly in order of merit on the combined results of the examinations to fill up the seats of the First Year Classes of the Degree Courses.

Candidates are to bring their own instruments for the Admission Test Examinations.

FEES AND DEPOSITS

1. TUITION FEE for students getting admitted into the Post Graduate Courses of this College is Rs. 240/- per annum payable in ten monthly instalments of Rs. 24/-.

2. TUITION FEE for all students taking admission into the Engineering Courses of the College is Rs. 180/- per annum payable in nine equal instalments of Rs. 20/-.

3. TUITION FEE for students in the Overseer Course of the College is Rs. 144/- per annum payable in nine monthly instalments of Rs. 16/-.

4. TUITION FEE for students in the Agriculture Course of the College is Rs. 60/- per annum payable in ten monthly instalments of Rs. 6/-.

5. (i) TUITION FEE must be paid on the dates to be notified by submitting the Fee-book which may be obtained from the Office on payment of annas four (-/4/-) per Fee-book per year.

(ii) Defaulters shall pay a fine of one pice for each day after the specified date till the day on which their fees are paid and their names are also liable to be struck off at the end of the month in which default has been made.

(iii) Defaulters whose names have been struck off may be readmitted on payment of tuition fees for the session due up to and inclusive of the month of such re-admission together with a re-admission fee of Rs. 1/-.

(iv) Re-admission fee and fines may be remitted wholly or partly in special cases on good and sufficient grounds.

6. No student shall be permitted to appear in the Annual Examinations unless he has paid his tuition fees and other dues including Hostel charges, if any, for the whole session.

7. Admission once taken into any class shall be counted to be for one complete session.

8. All students excepting the newly admitted students will have to pay a Medical Examination Fee of Re. 1/- in July.

9. The caution money deposit for the students of the Chemical Engineering Course is Rs. 25/- and for the students of all other courses is Rs. 10/-.

10. At the time of admission to the College the following fees are payable by new entrants :

	Admission Fee	Tuition Fee for July	Magazine Fee	Contingency Fee	Students' Union Fee	Sporting Fee	Aid Students' Fee	Caution money deposit	Medical Examination Fee	Registration Fee	Total
Students admitted into the Post Graduate Classes	24/-	24/-	2/8	2/-	1/-	5/-	-/8/-	25/-	1/-	—	85/-
New students admitted into the First Year Classes :											
(I) Engineering Department	20/-	20/-	2/8	2/-	1/-	5/-	-/8/-	10/-	1/-	2/-	64/-
(II) Overseer Department	16/-	16/-	2/8	2/-	1/-	5/-	-/8/-	10/-	1/-	—	54/-
(III) Agriculture Department	6/-	6/-	2/8	2/-	1/-	5/-	-/8/-	10/-	1/-	—	34/-
All students shall pay the following fees in January every year along with the Tuition Fee for the month			2/8	2/-	1/-	5/-	-/8/-	—	—	—	11/-

11. When a student has been admitted he shall not ordinarily be allowed to take transfer or withdraw his name except on payment of tuition fees for the unexpired portion of the session and arrears of tuition fees and other charges if any.

12. Remission of tuition fees for the unexpired portion of the session and other charges, if any, may be made by the Managing Committee wholly or partly in special cases on good and sufficient grounds.

* Note.—Caution money deposit for working in the laboratories, workshops and other practical classes is refundable at the end of the College career after deduction for breakage or dues if any. The Student must apply for its refund from the College within two years after he leaves the College and if he fails to do so, his deposit money will be forfeited. At the beginning of each session students are to pay their respective breakage charges of the previous session.

STIPENDS, SCHOLARSHIPS AND FREE STUDENTSHIPS

Stipends, Scholarships and Free Studentships are awarded to poor and meritorious students and the continuance of the same depends on good progress, regular attendance and good behaviour.

Scholarships in the form of Half-free Studentships are awarded for two years to teachers of this College prosecuting studies in Post Graduate Courses.

Scholarships in the form of Free Studentships are awarded to students who passing in all subjects, head the lists of successful candidates in the First and Intermediate Engineering Examinations in the following way :

Examination	Position	Minm. Marks in Annual Examination	Tenure
<i>First Engineering—</i> Chemical ...	1st	70%	One year.
Mechanical & Electrical ...	1st, 2nd & 3rd	70%	One year.
<i>Intermediate Engineering—</i> Chemical ...	1st	70%	Two years.
Mechanical & Electrical ...	1st, 2nd & 3rd	70%	Two years.

Scholarships in the form of Free Studentships are awarded to students who head the lists of successful candidates in the Annual Examinations of the First and Second Year Classes of the Overseer Course, securing not less than 70 per cent of the total marks.

Free-students, if they leave the College without sufficient and satisfactory reasons, must pay fees for the full period for which they were allowed exemption.

Loan scholarships; in lump sums, to meet Examination and College fees are awarded by the Alumni Association, N. C. E., Bengal, to deserving Final Year students under straitened pecuniary circumstances. Loans are also given to deserving students from the Students' Aid Fund.

Deserving students may also avail of the following Stipends and Scholarships :

Goopee Kristo Bose Stipend.
Nemai Chand Chatterjee Stipend.
Kristo Mohan Bose Stipend.
Rasul Memorial Scholarship.
Dwijendra Memorial Scholarship.
Mani Lal Chatterjee Stipend.
Nabanalini Debi Stipend.
Mary K. Das & Taraknath Das (Loan) Scholarship.
Sreemat Bhagabat Scholarship.

West Bengal Government Scholarships :—

- (i) 48 Stipends of the value of Rs. 300/- each per year for Degree Courses.
- (ii) 18 Stipends of the value of Rs. 200/- each per year for Diploma Students.

S. Ghose Memorial Scholarship of the value of not less than Rs. 700/- a year is awarded to a deserving Bengali Hindu candidate who has passed the Final Examination of the National Council of Education, Bengal, in Electrical Engineering to enable him to obtain Practical training in the subject abroad.

Prizes are awarded to students securing not less than 60 per cent marks in the aggregate according to the following scheme :—

First & Intermediate Engineering Examinations :—(on the results of the 1st & 2nd semester Examinations).

- (i) For Chemical Engineering Candidates—1st to 5th places for each examination.
- (ii) For Electrical & Mechanical Engineering Candidates for each examination—1st to 10th places.

For Final Engineering Examination (3rd year) :—

For each of the Chem., Elec. and Mech. Engineering 3rd year classes—1st to 5th places.

Prizes are awarded to students, on the results of the Annual Examinations of the Overseer First Year and Second Year

Classes and the Agriculture First Year Class, securing not less than 60 per cent marks in the aggregate, as follows :—

For Overseer 1st and 2nd year classes—1st to 3rd places.

For Agriculture 1st yr. class—1st & 2nd places.

Prizes are awarded only to those students who have passed in all papers of their respective examinations.

A sufficient number of Industrial Training Stipends to the graduates are awarded by the Government of India every year for practical training in different factories for two years. Six stipends are also awarded by the Government of West Bengal to the graduates for practical training under the Government for one year.

COLLEGE HOSTELS

1. There are College Hostels with accommodation for 500 students.

2. Applications from new students for admission into the hostel will only be considered after they have been admitted into the College.

Every admission shall be subject to the approval of the Principal. Boarders are liable for all charges from the beginning of the session.

3. All admissions are understood to be for a complete session, and boarders are liable for all charges from the beginning of the session.

4. Caution money of the amount of Rs. 50/- is payable in advance with every application for admission. The sum will be refunded in case a seat is not provided or when a boarder finally leaves the Hostel but in the latter case only after all dues have been paid up by him.

5. Admission fee of Rs. 5/- for a complete term shall be paid by every student on admission into the Hostel. Substitutes, when permitted, may however be exempted from such fees.

6. Each boarder shall have to pay the following scale of rent including charges for light and medical attendance by the 10th of every month. For each day's delay, a fine of one anna per day will be realised, up to 20th of the month, after which

his name will be struck off from the College register and he shall have to leave the Hostel.

Ground Floor ... Rs. 120 per annum

First & Second Floor ... Rs. 144 per annum

7. The above rents will be realised in 10 monthly instalments beginning from the month of July in every session.

Monthly instalments of seat rent etc. for the current month and boarding charges for the previous month, must be paid at the office of the College in one sum.

8. The Hostel will remain closed during the Puja Holidays and Summer Vacation.

9. Withdrawal from the Hostel will require the sanction of the Principal of the College. Application for withdrawal must be countersigned by the guardian of the boarder.

GENERAL INFORMATION

(a) College Regulations :—

(i) *The New Student's Responsibility.*—With a student's first registration in the College there begins for him a period of great responsibility, greater in most instances, than he has ever before been called upon to face. He should recognise that the success of his college career depends in large measure upon his own purpose, his own industry, and his own determination to make good use of his opportunities. The College offers instruction and the use of its equipments, teachers and other officers are ready to help with encouragement and advice ; but after all, the responsibility for success or failure must rest with the student himself.

(ii) *Discipline.*—All students are subject to the disciplinary control of the authorities of the College. In any case of serious breach of discipline, the student concerned may be suspended from attendance by the Principal, and the Managing Committee may at its discretion expel any student from the College without assigning any reason.

(iii) *Attendance.*—The normal hours of attendance during the session are from 10-30 A.M. to 5 P.M. with half an hour's recess.

Students must attend 70 per cent of the lectures in theoretical classes and 70 per cent of the exercises in practical classes. Percentage of attendance is strictly observed.

Percentage rules being binding on all students, applications for leave from the students or from the guardians on their behalf are unnecessary, as a student failing to be present in his class on any account has necessarily to be marked 'absent' in the Attendance Registers, and no commutation is permissible under any circumstances without contravention of the Rules.

(iv) *Damage to College Property*.—Each student is held accountable for any apparatus or equipment that may be assigned to him and for any damage to College Property for which he is responsible. Damage to property that cannot be charged to individuals will be charged against all the students in the class (or section) where the loss occurs.

(v) *Accidents*.—The College Authorities cannot accept any liability in respect of any accident which a student may sustain when engaged in practical work in the laboratories or workshops.

(b) *Students' Organisations and Activities* :—

Reasonable participation in extra-curricular activities is a worthwhile part of a well rounded education. Opportunities for extra-curricular activities are provided through :

1. The Students' Union.
2. The Sporting Club.
3. The College Journal.

The Students' Union

All students of the College are members of the Students' Union. They meet and elect an Executive Committee of which the Principal is the President and two members of the teaching staff are Vice-Presidents. The Vice-Presidents act as Faculty Advisers to the Executive Committee of the Students' Union, while the management of the Union's affairs are left entirely to that body.

The Union control the disposal of the Students' Welfare Fund, organise debates, essay competitions, dramatics, and other literary activities and hold one 'social' every year.

The Sporting Club

Of the Sporting Club the Principal is the President and two members of the teaching staff act as Vice-President and

General Secretary respectively. As in the Students' Union the Vice-President and the General Secretary act as Faculty Advisers leaving the management of the affairs of the Sporting Club to the elected student Secretaries of the various sections which comprise :—

1. The Football Section.
2. The Cricket Section.
3. The Hockey Section.
4. The Tennis Section.
5. The Gymnasium Section.

All students are expected to make use of the sports facilities provided for keeping themselves fit amidst a heavy academic programme and for recreation.

The College Journal

The College Journal is a four monthly publication managed by an elected student body under the guidance of a Faculty Advisory Committee of which the Principal is the President and a member of the teaching staff is the Secretary.

A senior student is elected every year the Editor of the College Journal and is assisted by student sub-editors.

The 'Tech'

The final year students publish every year a Year Book of their class called "TECH" containing life history and a photograph each, of the graduating students.

The Tech-Committee is elected every year from the final year classes and work under the guidance of a Tech Adviser who is the Chairman of the Committee.

(c) *The Alumni Association* :—

The Alumni Association is the Association of the "Old Boys" of the College. In addition to other activities directed to benefit the College the Loan Scholarship Fund for final year students of the College and the Placement Service may be specially mentioned. On the termination of their college career all students are eligible to be a member of the Association.

EXAMINATION RULES

1. Only those students of classes other than Engineering 1st and 2nd Year who have satisfactorily completed their practical work, satisfied the attendance requirements and paid all dues for the whole session, are eligible to sit for the examination.

2. At the end of each Academic Session, all students must appear at the Annual Examinations held by the National Council of Education, Bengal, in papers as stated in the Prospectus.

3. In addition to the above examination, every student shall, during each year of study, appear at three written Periodical Examinations in each theoretical paper. He shall also appear at Periodical Oral Examinations, if such are held.

4. All examinations will be held on "Compartmental System". Students must pass separately in every paper in the above examinations. A student who has passed the examination in any paper will not have to sit for examination in that paper again.

5. Every candidate will be declared to have passed the examination in any paper if he obtains—

(a) 50 per cent of the total marks of Periodical Examinations in that paper, and

(b) 50 per cent of the marks at the Annual Examination. Provided that if a candidate fails to obtain pass marks either at the Periodical Examinations or at the Annual Examination, he may be credited with not more than 5 marks transferred from either part of the examination, in excess of the pass marks in the paper, in order to enable him to pass.

6. Students, who have passed the Final Engineering Examination, will be declared to have graduated (i) with First Class Honours if they have obtained at least 70 per cent marks on the average in the Periodical Examinations and at least 70 per cent marks on the average in the Annual Examinations in the Final Engineering papers and at least 70 per cent in practical class works of the Third and Fourth Year Classes, (ii) with Second Class Honours if they have obtained at least 60 per cent marks on the average in the Periodical Examinations and at least 60 per cent marks on the average in the Annual Examinations in the Final Engineering papers and at least 60 per cent in practical class works of Third and Fourth Year Classes provided always that they have passed in all the papers of the Final Engineering Examinations in the first chance.

7. Students who have passed the Post Graduate Examinations will be declared to have passed with First Class Honours

if they have obtained at least 70 per cent marks on the average and with Second Class Honours if they have obtained at least 60 per cent marks on the average.

8. Students of the Diploma courses who fail to pass in not more than two papers will be promoted to the next higher class, but they will have to pass examinations in those papers before they can be promoted further.

9. Students, who have passed in all subjects of their regular year, but cannot be promoted in accordance with Rule 8 above, shall have to attend classes for the whole session in those papers in which they failed to pass and have to pass the Annual Examination in those papers, failing which they will not be allowed to continue their studies in this College any further. Such students will not be allowed to sit for the Supplementary Examinations in those papers.

10. If any student fails to get promotion to the next higher class he will be required to attend the classes and pay the regular tuition and other fees. Students eligible for readmission must apply to the Principal for his readmission by the 31st of July, after which no further application will be entertained.

11. (i) Students of the 1st and 2nd Year Classes who fail to get promotion to the next higher class on the result of the Annual Examinations will be allowed to study again in the 1st and 2nd Year Classes respectively for another session only and the students detained for two years in the same Class will not be allowed to continue their studies in the College any further.

(ii) Students of the 3rd and 4th Year Classes who have been detained in the same class for two years, will be allowed to appear at another Annual Examination as non-collegiate students by paying only the examination fees as current for the Supplementary Examination and such students need not be admitted into the College in that session and need not, therefore, pay tuition and other regular fees.

12. Students belonging to Engineering Third Year Classes, who have passed in all papers of the Intermediate Engineering Examination, will be promoted to the Engineering Fourth Year Classes with a maximum of three papers in which they had failed to pass.

13. Only those students of Final Year Classes, who fail to pass in not more than three papers of the Final Engineering

Examination and in not more than two papers of the Final Examination of the Diploma Course, Final Overseer Course, and Final Agriculture Course, as the case may be, will be permitted to appear and pass in those papers in two subsequent and consecutive examinations, including Supplementary Examination, without attending the classes, provided they can satisfy the Authorities of the College that they are employed in some recognised firm. Intimation of such employment should reach the College on or before the 1st day of September of the year in which they completed the study of the Final Year Class. They will also have to register their names in the College by paying an enrolment fee of Rs. 10/- (Rupees ten) only and will have to pay a fee of Rs. 20/- (Rupees twenty) only for each examination they sit for. Students of this category not engaged in any factory will have to take admission in the College and attend classes and pay all fees for the session.

14. Students of the Final Year Classes, who fail to pass in more than three papers of the Final Engineering Examination and in more than two papers in the Final Examination of the Diploma Course, Final Overseer Course, and Final Agriculture Course as the case may be, will be required to attend the classes and pay regular tuition and other fees. They will have to pass in all remaining papers in the next Supplementary and Annual Examinations.

15. Those students who duly cleared their dues up to the end of the session and duly paid the examination fees, but owing to some accident or unavoidable circumstances could not appear in any of the examinations of the Council, are allowed to appear in the next Annual examination without attending the classes and without paying any further tuition fees, excepting the examination fees. But they will have to enrol their names for the classes with payment of a fee of Rs. 5/- (Rupees five) only within a month after the beginning of the session.

16. A Supplementary Examination will be held each year between two Annual Examinations for the benefit of the students who, having failed to pass in one or more subjects at the Annual Examination, are permitted to prosecute their studies in the next higher class. Such students can appear at the Supplementary Examinations only in those papers in which they had failed to pass.

17. Students shall pay examination fees as follows :

I. For annual examinations and examinations at the end of each semester :

(a) Post Graduate Courses :

Rs. 15/- per paper and Rs. 60/- for the thesis.

(b) Final Engineering Examinations :

Rs. 4/- per paper subject to a minimum of Rs. 15/-.

(c) All other examinations :

Rs. 3/- per paper subject to a minimum of Rs. 12/-.

II. For Supplementary Examinations :

(a) Degree Courses :

Rs. 4/- per paper of Final Engineering and Rs. 3/- per paper for other examinations both subject to a minimum of Rs. 20/-.

(b) All other Courses :

Rs. 3/- per paper subject to a minimum of Rs. 15/-.

Students admitted prior to the commencement of the session 1951-52 shall pay examination fees according to the old rates. Detained students of the First Year Classes, however, shall pay examination fees according to the enhanced rates.

18. Examination fees once paid shall in no case be refunded.

19. Applications for re-examination of answer papers will not be entertained if submitted later than the last date announced for the same. Those candidates who intend to have their papers re-examined may apply for the same with a fee of Rs. 5/- for each paper. Re-examination fees are never refundable.

20. No certificate will be issued by the Council on the results of any examinations except the Final. Degrees will be granted to students who pass the Final Examinations of the Post Graduate and Degree Courses and Certificates to students who pass the Final Examinations of other courses.

21. Fees for Annual and Supplementary Examinations must be paid within the dates to be fixed for the purpose.

Fifteen days' grace with a penalty of Rs. 5/- may be allowed at the discretion of the Controller of Examinations.

22. Examination rules for Engineering First and Second Year Classes are given under "Subjects of examination" of the respective classes.

PROGRAMME OF STUDY

I. POST GRADUATE COURSES

Chemical Engineering

	Full Marks
(i) Chemical Engineering Thermodynamics	One Paper 100
(ii) & (iii) Any two unit process: e.g., (a) Evaporation, (b) Distillation, (c) Absorption etc. (One written paper for each). A foreign language (German, French or Russian) may be taken in place of any one of these two ...	Two Papers 200
(iv) One of the elective subjects of the B.Ch.E. course which has not been taken by the student in his under- graduate course	One Paper 100
(v) Research work in any Chemical or Ch.E. Problem on which a thesis should be submitted. (An oral exami- nation will be held on the thesis) ...	One Paper 100
Total ...	Five Papers 500

Electrical Engineering

The following three subjects are compulsory for all students :

	Full Marks
1. Higher Mathematics	One Paper 100
2. Advanced Physics	One Paper 100
3. Foreign Language	One Paper 100

In addition to the above-mentioned subjects students are to take any two of the following subjects :

4. Electrical Machines	} Two Papers 200
5. Electric Power	
6. Electrical Communications	
7. (a) Symmetrical Components (b) Power System Measurements & Relaying	

Research Work

A thesis should be submitted on the research work and there will be an Oral Examination on the thesis ...

One Paper 100

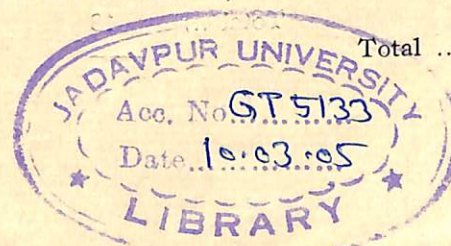
Total ... Six Papers 600

Mechanical Engineering

(i) & (ii) The students are to select any two of the following nine subjects :

1. Advanced Thermodynamics	} Two Papers 200
2. Advanced Hydraulics	
3. Advanced Machine Tools	
4. Production Engineering	
5. Power Plant Engineering	
6. Internal Combustion Engine	
7. Refrigeration & Air-Conditioning	
8. Heat Transmission, and	
9. Measuring Instruments	
(iii) Higher Mathematics	One Paper 100
(iv) Advanced Technical Mechanics	One Paper 100
(v) In addition to those subjects a piece of Research is to be done by each student and a thesis is to be submitted on the same. There will be an oral examination on the thesis ...	One Paper 100
(vi) One foreign language (German, French or Russian)	One Paper 100

Total ... Six Papers 600



The examination will be on the compartmental system and will be held once a year along with the Annual Examinations. The thesis on the research work may not be finished in one year in all cases but that will not debar the students from sitting for examination in the theoretical papers. They may continue their research work and prepare the thesis after the written examination in such cases. The students will be entitled to the Master's Degree on fulfilment of all the conditions (*i.e.* passing in the four papers and the Thesis). As long as they do not fulfil these conditions they will have to remain as students and pay the usual tuition fees.

There will be no observance of percentage in attendance, and the minimum pass marks shall be 50%.

II. ENGINEERING COURSES

(1) FIRST YEAR CLASS

Students who are admitted to the First Year Class of the Electrical Mechanical and Chemical Engineering Courses after passing the I.Sc. or B.Sc. examinations of any recognised University, study the following subjects in the Engineering First Year Class :

Electrical and Mechanical Engineering

First Semester (11th July to 30th November)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
M. 1	Co-ordinate Geometry ...	4	—
M. 2A	Differential Calculus ...	4	—
P. 1	Physics (Heat, Light & Sound)	4	—
G. 1	English ...	2	—
E. M. 1	Engineering Mechanics I ...	4	—
D. 1	Drawing ...	—	6
D. 2	Descriptive Geometry ...	—	3
W. 1	Carpentry and Moulding ...	—	3
P. 1A	Physics Laboratory ...	—	4
Total ...		18	16

Second Semester (1st January to 15th April)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
M. 2B	Integral Calculus ...	4	—
P. 2	Physics (Electricity & Magnetism)	4	—
E. M. 1	Engineering Mechanics I ...	4	—
O. 1	Survey ...	2	—
G. 1	English ...	2	—
G. 2	Modern World I ...	2	—
D. 1	Drawing ...	—	6
D. 2	Descriptive Geometry ...	—	3
W. 1	Carpentry and Moulding ...	—	3
P. 1A	Physics Laboratory ...	—	4
	Practical Survey ...	—	3
Total ...		18	19

Chemical Engineering

First Semester (11th July to 30th November)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
M. 1	Co-ordinate Geometry ...	4	—
M. 2A	Differential Calculus ...	4	—
P. 1	Physics (Heat, Light and Sound)	4	—
G. 1	English ...	2	—
E. M. 1	Engineering Mechanics I ...	4	—
Ch. 2	Inorganic Chemistry I ...	3	—
D. 1	Drawing ...	—	6
P. 1A	Physics Laboratory ...	—	4
Ch. 2A	Qualitative Analysis ...	—	9
Total ...		21	19

Second Semester (1st January to 15th April)

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK	
	Theoretical	Practical
M. 2B Integral Calculus ...	4	—
P. 2 Physics (Electricity and Magnetism)	4	—
E. M. 1 Engineering Mechanics I ...	3	—
Ch. 2 Inorganic Chemistry I ...	3	—
Ch. 3 Organic Chemistry I ...	5	—
G. 1 English ...	2	—
G. 2 Modern World I ...	2	—
D. 1 Drawing ...	—	6
P. 1A Physics Laboratory ...	—	4
Ch. 2A Qualitative Analysis ...	—	9
Total ...	23	19

SUBJECTS OF EXAMINATION

I. ENGINEERING COURSES

(1) FIRST YEAR CLASS

Students of the First Year Classes, who have completed the programme of study offered in the first semester will be allowed to appear in the following papers of the First Engineering Examinations of the National Council of Education, Bengal, held annually at the end of first semester, in the month of December.

First Semester Examination

(1) Electrical and Mechanical Engineering

SUBJECTS	NO. OF PAPERS	FULL MARKS
1. English	1	100
2. Co-ordinate Geometry	1	100
3. Differential Calculus	1	100
4. Heat, Light and Sound	1	100
	4	400

(2) Chemical Engineering

SUBJECTS	NO. OF PAPERS	FULL MARKS
1. English	1	100
2. Co-ordinate Geometry	1	100
3. Differential Calculus	1	100
4. Heat, Light and Sound	1	100
	4	400

Students of the First Year Classes who have completed the programme of study offered in the second semester and have obtained at least 50 per cent marks in each of the practical subjects of instruction (which includes also any tutorial work) offered during the academic year and have satisfied the attendance rule will be allowed to appear in the following papers of the First Engineering Examination of the National Council of Education, Bengal, held annually at the end of second semester in the month of April and May.

Students who fail to complete their class works satisfactorily will not be allowed to sit for the examination.

Second Semester Examination

(1) Electrical and Mechanical Engineering

SUBJECTS	NO. OF PAPERS	FULL MARKS
1. Modern World I	1	100
2. Integral Calculus	1	100
3. Electricity and Magnetism	1	100
4. Engineering Mechanics I	1	100
5. Survey	1	100
6. Drawing (6 hours)	1 (Practical)	100
7. Descriptive Geometry (3 hours)	1	100
8. Physics Laboratory	1	100
	8	800

(2) Chemical Engineering

SUBJECTS		NO. OF PAPERS	FULL MARKS
1. Modern World I ...	...	1	100
2. Inorganic Chemistry I ...	...	1	100
3. Organic Chemistry I ...	...	1	100
4. Integral Calculus ...	...	1	100
5. Electricity and Magnetism ...	...	1	100
6. Engineering Mechanics I ...	...	1	100
7. Drawing (6 hours) ...	...	1 (Practical)	100
8. Physics Laboratory ...	...	1 „	100
		8	800

Students, who have passed in all papers of the First Engineering Examinations subject to rules 3 and 5 of Examination Rules are promoted to the Engineering Second Year Class.

For the benefit of the students who have failed to get promotion to the Second Year Class due to their being absent or being unable to secure pass mark in one or more papers of the examination held at the end of First and, or Second Semesters, a Supplementary Examination will be held in the last week of June. Students passing in this examination will also be promoted to the Second Year Class. Those students who cannot secure promotion will be allowed to study again in the same class as regular students for another session only, or will be given one more chance to clear the paper or papers in the supplementary examination held at the end of the next session as non-collegiate students who will have to pay only examination fees but no tuition fees.

PROGRAMME OF STUDY

II. ENGINEERING COURSES

(2) SECOND YEAR CLASSES

Students, who have been promoted from the First Year Class, study the following subjects in the Second Year Classes :

Electrical and Mechanical Engineering

First Semester (11th July to 30th November)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
M. 3	Integral Calculus and Differential Equations ...	4	—
E. E. 1	Principles of Electrical Engineering I ...	3	—
E. E. 2	Electrical Wiring and Installations ...	2	—
E. E. 3	Direct Current Machines ...	4	—
E. M. 2	Engineering Mechanics II ...	3	—
M. E. 1	Engineering Thermodynamics ...	3	—
G. 3	Modern World II ...	2	—
M. E. 19	Machine Drawing ...	—	6
E. M. 9	Engineering Computation ...	—	4
E. E. 22	Electrical Engineering Laboratory I ...	—	3
W. 2	Patterns and Forging ...	—	3
W. 3	Fitters' shop ...	—	3
Total ...		21	19

Second Semester (1st January to 15th April)

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK	
	Theoretical	Practical
E. M. 8 Engineering Materials & Processes ...	4	—
M. E. 1 Engineering Thermodynamics ...	3	—
M. E. 2 Mechanism ...	4	—
E. M. 2 Engineering Mechanics II ...	3	—
E. E. 1 Principles of Electrical Engineering I ...	3	—
M. E. 19 Machine Drawing ...	—	6
E. E. 22 Electrical Engineering Laboratory I ...	—	3
W. 2 Patterns and Forging ...	—	3
W. 3 Fitters' Shop ...	—	3
E. M. 7 Mechanism Drawing ...	—	4
M. 4 Engg. Mathematics ...	2	—
Total ...	19	19

Chemical Engineering

First Semester (11th July to 30th November)

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK	
	Theoretical	Practical
Ch. 4 Inorganic Chemistry II ...	4	—
Ch. 6 Physical Chemistry I ...	3	—
M. 3 Integral Calculus & Diff. Equation ...	4	—
M. E. 3 Heat Engines ...	4	—
E. E. 17 Electrical Engineering ...	3	—
G. 3 Modern World II ...	2	—
M. E. 19 Machine Drawing ...	—	6
Ch. 4A, Ch. 5A & Ch. 11A Chemistry Laboratory ...	—	12
Total ...	20	18

Second Semester (1st January to 15th April)

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK	
	Theoretical	Practical
E. M. 3 Engineering Mechanics ...	6	—
Ch. 6 Physical Chemistry I ...	3	—
Ch. 5 Organic Chemistry II ...	6	—
E. E. 17 Electrical Engineering ...	3	—
M. E. 19 Machine Drawing ...	—	6
E. E. 17A Electrical Engineering Laboratory ...	—	3
Ch. 4A, Ch. 5A & Ch. 11A Chemistry Laboratory ...	—	12
M. 4 Engg. Mathematics ...	2	—
Total ...	20	21

SUBJECTS OF EXAMINATION

II. ENGINEERING COURSE

(2) SECOND YEAR CLASS

Students of the Engineering Second Year Classes, who have completed the programme of study offered in the first semester will be allowed to appear in the following papers of the Intermediate Engineering Examination of the National Council of Education, Bengal, held annually at the end of the First Semester, in the month of December.

First Semester Examination

Electrical and Mechanical Engineering

SUBJECTS	NO. OF PAPERS	FULL MARKS
1. Integral Calculus and Differential Equation	1	100
2. Modern World II ...	1	100
3. Direct Current Machines ...	1	100
4. Electric Wiring and Installations ...	1	100
	4	400

Chemical Engineering

SUBJECTS	NO. OF PAPERS	FULL MARKS
1. Integral Calculus and Differential Equation	1	100
2. Modern World II ...	1	100
3. Heat Engines ...	1	100
4. Inorganic Chemistry II ...	1	100
	4	400

Students of the Engineering Second Year Classes who have completed the programme of study offered in the Second Semester and have obtained at least 50 per cent marks in each of the practical subjects of instruction (which includes also any tutorial work) offered during the academic year, and have satisfied the attendance rule will be allowed to appear in the following papers of the Intermediate Engineering Examination of the National Council of Education, Bengal, held annually at the end of the Second Semester in the month of April and May.

Students, who fail to complete their class works satisfactorily, will not be allowed to sit for this examination.

*Second Semester Examination**Electrical and Mechanical Engineering*

SUBJECTS	NO. OF PAPERS	FULL MARKS
1. Engineering Materials and Processes	1	100
2. Engineering Thermodynamics ...	1	100
3. Mechanism ...	1	100
4. Engineering Mechanics II ...	1	100
5. Principles of Electrical Engineering I	1	100
6. Machine Drawing (6 hours) ...	1 (Practical)	100
7. Engineering Mathematics ...	1	100
	7	700

Chemical Engineering

SUBJECTS	NO. OF PAPERS	FULL MARKS
1. Engineering Mechanics ...	1	100
2. Organic Chemistry II ...	1	100
3. Physical Chemistry I ...	1	100
4. Electrical Engineering ...	1	100
5. Machine Drawing (6 hours)	1 (Practical)	100
6. Engineering Mathematics	1	100
	6	600

Students, who have passed in all papers of the Intermediate Engineering Examinations subject to rules 3 and 5 of Examination Rules are promoted to the Engineering Third Year Class.

For the benefit of the students who have failed to get promotion to the Third Year Class due to their being absent or being unable to secure pass mark in one or more papers of the examination held at the end of First and, or, Second Semester, a supplementary examination will be held in the last week of June. Students passing in this examination will also be promoted to the Third Year Class. Those students, who cannot secure promotion due to failure to get pass mark or being absent in one or more papers, will be allowed to study again in the same class as regular students for another session only, or will be given one more chance to clear the paper or papers in the supplementary examination held at the end of the next session as non-collegiate students who will have to pay only examination fees but no tuition fees.

No student will be allowed to sit for any paper in the supplementary examination if he has not completed all class works satisfactorily. If a student is debarred from appearing in the Supplementary Examination held at the end of the Second Semester, due to incomplete class works, he will be given one more chance to attend the classes and will have to take admission in the College by paying readmission fee and attend regularly for the whole session those practical classes in which his progress was not satisfactory. He shall have to pay the full tuition and other fees. On satisfactory completion of class works (which means securing at least 50 per cent marks) he

will be allowed to sit for the Annual Examination held at the end of the Second Semester as well as in the Supplementary Examination if need be. If he fails to clear all papers in these two successive examinations he will not be allowed to study in the College any further. It should be noted that class work includes tutorial works in any subject when such are held.

This rule apply to both First and Second Year Engineering Classes.

PROGRAMME OF STUDY

II. ENGINEERING COURSES

(3) THIRD YEAR CLASS

Students, who have been promoted from the Second Year Classes, study the following subjects in the Third Year Classes :

Chemical Engineering

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
E. M. 5	Strength of materials ...	3	—
Ch. 7	Physical Chemistry II ...	2	—
Ch. 8	Electrochemistry ...	3	—
Ch. 11	Industrial Chemistry I ...	2	—
Ch. 12	Metallurgy ...	2	—
Ch. 10	Chemical Engineering I ...	3	—
Ch. 13	Fuels and Their Combustion ...	3	—
Ch. 10A	Industrial & Chemical Engineering Calculations I ...	2	—
Ch. 9, Ch. 11A	Physico-Chemical Measurements ...	—	18*
Ch. 11A, Ch. 5A	Technical Analysis ...	—	18*
M. E. 9C	Machine Drawing and Design ...	—	3
Total ...		19	21

* For half year, i.e. 15 weeks (which means securing at least 50 per cent marks in the examination)

Electrical Engineering (Power Engineering)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
E. M. 5	Strength of Materials ...	3	—
M. E. 8	Hydraulics ...	2	—
M. E. 7	Prime Movers ...	3	—
E. E. 5	Differential Equations & Operational Calculus ...	2	—
E. E. 6	Alternating Current Machines I ...	4	—
E. E. 4	Principles of Electrical Engineering II ...	2	—
E. E. 4A	Electron Tubes and Circuits ...	1	—
E. E. 8	Electrical Measuring Instruments & Measurements ...	3	—
E. E. 21	Electrical Engineering Calculations ...	—	2
E. E. 19	Electrical Drawing & Design ...	—	3
E. E. 23	Electrical Engineering Laboratory II ...	—	3
M. E. 9B	Machine Drawing & Design ...	—	5
M. E. 21B	Mechanical Engineering Laboratory ...	—	3
W. 4A	Machine Shop ...	—	3
Total ...		20	19

Electrical Engineering (Communication Engineering)

Students will have to opt at the beginning of the Third Year.

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
E. M. 5	Strength of Materials ...	3	—
M. E. 8	Hydraulics ...	2	—
M. E. 7	Prime Movers ...	3	—
E. E. 5	Differential Equations and Operational Calculus ...	2	—
E. E. 6	Alternating Current Machines I ...	4	—
E. E. 4	Principles of Electrical Engineering ...	2	—

Electrical Engineering (Communication Engineering)—Contd.

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK	
	Theoretical	Practical
E. E. 8 Electrical Measuring Instruments and Measurements ...	3	—
E. E. 21 Electrical Engineering Calculations ...	—	2
E. E. 15.3 Drafting in Communication ...	—	3
E. E. 23 Electrical Engineering Laboratory II ...	—	3
M. E. 21B Mechanical Engineering Laboratory ...	—	3
W. 4A Machine Shop ...	—	3
E. E. 15.1 Theory and Application of Electron Tubes ...	3	—
E. E. 15.2 Electronics Laboratory I ...	—	3
	22	17

Mechanical Engineering

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK	
	Theoretical	Practical
E.M. 4 Strength of Materials and Theory of Structures ...	4	—
M. E. 8 Hydraulics ...	2	—
M. E. 9 Theory of Machine Design ...	2	—
M. E. 4 Steam Engines & Boilers ...	4	—
M. E. 5 Steam Turbine ...	2	—
M. E. 6 Internal Combustion Engines ...	2	—
E. E. 16 A.C. Machine & Power Distribution ...	3	—
M. E. 9A Machine Drawing & Design ...	—	8
M. E. 21A Mechanical Engineering Laboratory ...	—	6
E. E. 23A Electrical Engineering Laboratory ...	—	3*
W. 4 Workshop Practice—Machineshop ...	—	6
Total ...	19	20

* For half year instead of M. E. 21A.

SUBJECTS OF EXAMINATION**II. ENGINEERING COURSES****(3) THIRD YEAR CLASS**

Students of the Engineering Third Year Classes, who have completed the above programme of study and have obtained at least 50 per cent marks in the Practical Subjects of Instruction, and have satisfied attendance rule are allowed to appear in the following subjects of the Final Engineering Examination of the National Council of Education, Bengal, held annually at the end of the Academic Session :

Chemical Engineering

SUBJECTS	NO. OF PAPERS	FULL MARKS
Strength of Materials ...	1	100
Physical Chemistry II ...	1	100
Electro-Chemistry ...	1	100
Industrial Chemistry I ...	1	100
Metallurgy ...	1	100
Fuels & their Combustion ...	1	100
Industrial & Chemical Engineering Calculations I ...	1	100
Machine Drawing & Design (6 hours) ...	1	100
Technical Analysis ...	1	100
		900

Electrical Engineering (Power Engineering)

SUBJECTS	NO. OF PAPERS	FULL MARKS
Strength of Materials ...	1	100
Hydraulics ...	1	100
Prime Movers ...	1	100
Differential Equations & Operational Calculus ...	1	100
Alternating Current Machines I ...	1	100
Principles of Electrical Engineering II ...	1	100
Electrical Measuring Instruments and Measurements ...	1	100
Electron Tubes & Circuits ...	1	100
Machine Drawing & Design (6 hours) ...	1	100
		900

Electrical Engineering (Communication Engineering)

SUBJECTS	NO. OF PAPERS	FULL MARKS
Strength of Materials	1	100
Hydraulics	1	100
Prime Movers	1	100
Differential Equations and Operational Calculus	1	100
Alternating Current Machines	1	100
Principles of Electrical Engineering II	1	100
Electrical Measuring Instruments and Measurements	1	100
Theory and Application of Electron Tubes	1	100
Electronics Laboratory (Practical & Oral)	1	100
		900

Mechanical Engineering

SUBJECTS	NO. OF PAPERS	FULL MARKS
Strength of Materials and Theory of Structures	1	100
Hydraulics	1	100
Theory of Machine Design	1	100
Steam Engines & Boilers	1	100
Steam Turbines	1	100
Internal Combustion Engines	1	100
A.C. Machines & Power Distribution	1	100
Machine Drawing & Design (6 hours)	1	100
		800

Students, who have passed in all subjects of the above Examination, subject to Rules 3 and 5 of the Examination Rules, are promoted to the Engineering Fourth Year Classes, provided they have also passed in all subjects of the Intermediate Engineering Examination and have satisfactorily completed a factory training of three months, to be arranged for by the College.

Students, who have passed in all subjects of the Intermediate Engineering Examination and have got plucked in not more

than three of the above subjects of the Final Engineering Examination, will also be promoted to the Engineering Fourth Year Classes, provided they have satisfactorily completed three months' factory training to be arranged for by the College. They will, however, have to pass in those subjects of the Third Year Class in which they failed to secure pass marks before they can be granted the Degree at the end of the Course.

Practical training of the Third Year students of the Mechanical, Electrical and Chemical Engineering Courses will be treated as a special subject carrying 100 marks with special proviso that (a) the minimum number of days of attendance for practical training is 70 days and (b) Trainee should secure at least 50 per cent marks on their training records.

PROGRAMME OF STUDY**II. ENGINEERING COURSES****(4) ENGINEERING FOURTH YEAR CLASS**

Students, who have been promoted from the Engineering Third Year Classes, study the following subjects in the Fourth Year Classes :

		<i>Chemical Engineering</i>	
		PERIODS PER WEEK	
SUBJECTS OF INSTRUCTION		Theoretical	Practical
Ch. 14	Chemical Engineering II	4	—
Ch. 15	Industrial Chemistry II	2	—
Ch. 14A	Industrial & Chemical Engineering Calculations II	2	—
G. 4	Engineering Economics	2	—
Ch. 16	Chemical Engineering Laboratory	—	14*
W. 4A	Machine Shop	—	3
<i>Electives :</i>			
<i>Any one of the following three :</i>			
Ch. 17	Chemical Technology of Oils & Fats	3	6
Ch. 18	Glass Technology	3	
Ch. 19	Food Technology	3	
Total ...		13	23

* Students are required to work in the Mechanical Engineering Laboratory M. E. 21C for eight weeks as part of the work in Ch. 16.

Electrical Engineering
(Power Engineering Option)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
M. E. 24	Power Plant & Boiler	2	—
E. E. 7	A. C. Machines II	2	—
E. E. 10	Electric Power Transmission	2	—
E. E. 11	Electric Power Generation	2	—
E. E. 12	Power Utilization & Traction	2	—
E. E. 14	Elements of Communications and Applied Electronics	3	—
E. E. 9	Electric Power Distribution	2	—
G. 4	Engineering Economics	2	—
G. 5	General Study	2	—
E. E. 24	Electrical Engineering Laboratory III	—	6
E. E. 20	Electrical Project & Design	—	6
E. E. 25	Electrical Workshop	—	3
E. E. 26	Abstract	—	2
E. E. 18	Electrical Drawing	—	3
	Total	19	20

(Communication Engineering Option)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
<i>First Semester :—</i>			
E. E. 15.4	Communication Networks	4	—
E. E. 15.5	Electroacoustics	3	—
E. E. 15.6	Electromagnetic Waves	4	—
E. E. 15.7	Radio Communication Theory	3	—
E. E. 15.8	Electronics Laboratory II	—	6
E. E. 15.9	Electronic Equipment Shop I	—	3
E. E. 15.10	Electronic Design I	—	6
E. E. 15.11	Communication Laboratory	—	3
E. E. 10	Electric Power Transmission	2	—
G. 4	Engineering Economics	2	—
	General Study	2	—
	Total	20	18

(Communication Engineering Option)—(Contd.)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
<i>Second Semester :—</i>			
E. E. 15.12	Telephone and Telegraph Systems	6	—
E. E. 15.13	Ultrahigh Frequency Techniques	4	—
E. E. 15.14	Communication Systems	4	—
E. E. 15.15	Communication Laboratory II	—	6
E. E. 15.16	Electronic Design II	—	4
E. E. 15.17	Electronic Equipment Shop II	—	6
E. E. 15.18	Seminar	—	2
E. E. 10	Electric Power Transmission	2	—
G. 4	Engineering Economics	2	—
	General Study	2	—
	Total	20	18

Mechanical Engineering

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
E. M. 6	Technical Dynamics	2	—
M. E. 11	Power Plant Engineering	2	—
M. E. 16	Factory Organization & Management	2	—
M. E. 15	Mechanical Handling of Materials	2	—
M. E. 14	Materials of Construction	2	—
M. E. 13	Machine Tools	2	—
G. 4	Engineering Economics	2	—
G. 5	General Geology	2	—

Mechanical Engineering—(Contd.)

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
<i>Electives :</i>			
<i>Any two of the following</i>			
<i>six Subjects :</i>			
G. 6	Engineering Geology ...	2	4
M. E. 17	Refrigeration ...	2	
M. E. 18	Air Conditioning ...	2	
M. E. 12	Motor Car Engineering ...	2	
M. E. 10	Hydraulic Machine and Water Power ...	2	
M. E. 23	Railway Engineering Mechanical ...	2	
<i>or</i>			
<i>the following two :</i>			
M. E. 25	Quantity Production Methods ...	2	
M. E. 26	Production Planning ...	2	
W. 4	Advanced Workshop Practice ...	—	6
M. E. 21A	Mechanical Engineering Laboratory ...	—	3
M. E. 20	Machine Design ...	—	9
M. E. 22	Abstract ...	—	2
Total ...		20	20

SUBJECTS OF EXAMINATION**II. ENGINEERING COURSES****(4) FOURTH YEAR CLASS**

Students of the Engineering Fourth Year Classes, who have completed the above Programme of Study and have obtained at least 50 per cent marks in the Practical Subjects of instruction and have satisfied the attendance rule are allowed to appear in the Final Engineering Examination of the National Council

of Education, Bengal, held annually at the end of the Academic Session in the following remaining subjects of that Examination :

<i>Chemical Engineering</i>				NO. OF PAPERS	FULL MARKS
SUBJECT					
Chemical Engineering I	...	...	1	100	
Chemical Engineering II	...	...	1	100	
Industrial Chemistry II	...	...	1	100	
Industrial and Chemical Engineering Calculation II	...	...	1	100	
Engineering Economics	...	...	1	100	
Chemical Engineering Design	...	...	—	100	
General Knowledge in Chemistry and Chemical Engineering	...	...	1 (oral)	100	
<i>Electives :</i>					
Chemical Technology of Oils & fats	}	...	1	100	
or					
Glass & Ceramic Technology					
or					
Food Technology	...	...			
				800	

<i>Electrical Engineering</i>				NO. OF PAPERS	FULL MARKS
(Power Engineering Option)					
SUBJECT					
Power Plant & Boiler	...	...	1	100	
Electric Power Transmission	...	...	1	100	
Power Utilisation & Traction	...	...	1	100	
Electric Power Generation	...	...	1	100	
Elements of Communication and Applied Electronics	...	...	1	100	
General Study	...	...	1	100	
Engineering Economics	...	...	1	100	
Electrical Engineering Laboratory (oral)	...	...	1	100	
Electric Power Distribution	...	...	1	100	
A. C. Machines II	...	...	1	100	
				1000	

(Communication Engineering Option)

SUBJECT	NO. OF PAPERS	FULL MARKS
At the End of First Semester :		
Communication Networks ...	1	100
Electroacoustics ...	1	100
Electromagnetic Waves ...	$\frac{1}{2}$	50
Radio Communication Theory ...	$\frac{1}{2}$	50
At the End of Second Semester :		
Telephone and Telegraph Systems ...	1	100
Ultrahigh Frequency Techniques ...	1	100
Communication Systems ...	1	100
Electric Power Transmission ...	1	100
Engineering Economics ...	1	100
General Study ...	1	100
Communication and Electronics Laboratory (Practical and Oral) ...	1	100
		1000

Mechanical Engineering

SUBJECT	NO. OF PAPERS	FULL MARKS
Power Plant Engineering ...	1	100
Factory Organisation & Management ...	1	100
Mechanical Handling of Materials ...	1	100
Materials of Construction ...	1	100
Machine Tools ...	1	100
Technical Dynamics ...	1	100
General Study (General Geology) ...	1	100
Engineering Economics ...	1	100
Advanced Workshop Practice (oral) ...	1	100
Mechanical Engineering Laboratory (oral) ...	1	100

Mechanical Engineering—(Contd.)

SUBJECT	NO. OF PAPERS	FULL MARKS
Electives : Any two of the following :		
Engineering Geology ...	1	100
Refrigeration ...	1	100
Air Conditioning ...	1	100
Motor Car Engineering ...	1	100
Hydraulic Machines & Water Power ...	1	100
Railway Engineering Mechanical ...	1	100
or		
the following two :		
Quantity Production Methods ...	1	100
Production Planning ...	1	100
	2	200
		1200

Students, who have passed in all subjects of the Final Engineering Examinations, subject to rules 3 and 5 of the Examination Rules, held at the end of the Third and Fourth Year Classes, are granted Degrees in Chemical, Electrical or Mechanical Engineering, as the case may be, by the National Council of Education, Bengal.

The students, who have obtained the B.M.E. Degree and want to obtain B.E.E. Degree, are to study the following subjects in their Electrical Engineering 3rd and 4th Year Classes respectively :—

Subjects for Electrical Engineering Third Year Class

1. Differential Equations & Operational Calculus.
2. Alternating Current Machines—I.
3. Principles of Electrical Engineering—II.
4. Electrical Engineering Calculation.
5. Electrical Drawing & Design.
6. Electrical Engineering Laboratory.
7. Electrical Measuring Instruments & Measurements.

Subjects for Electrical Engineering Fourth Year Class

1. Electrical Power Transmission.
2. Power Utilization & Traction.
3. Electrical Power Generation.
4. A. C. Machines—II.
5. Elements of Communication and Applied Electronics.
6. Electrical Power Distribution.
7. Electrical Engineering Laboratory—III.
8. Electrical Project & Design.
9. Electrical Workshop.
10. Abstract.
11. Electrical Drawing.

The students, who have obtained the degree of B.E.E. and want to obtain B.M.E. degree are to study the following subjects in their 3rd and 4th year classes respectively.

Subjects for Mechanical Engineering Third Year Class

1. Strength of Materials & Theory of Structures.
2. Theory of Machine Design.
3. Steam Engine & Boiler.
4. Steam Turbines.
5. Internal Combustion Engines.
6. Machine Drawing & Design.
7. Mechanical Engineering Laboratory.
8. Workshop Practice—Machine shop.

Subjects for Mechanical Engineering Fourth Year Class

1. Technical Dynamics.
2. Power Plant Engineering.
3. Factory Organization and Management.
4. Mechanical Handling of Materials.
5. Materials of Construction.
6. Machine Tools ; and
7. & 8. Any two of the following six subjects :—
 1. Engineering Geology.
 2. Refrigeration.
 3. Air Conditioning.
 4. Motor Car Engineering.
 5. Hydraulic Machine and Water Power Engineering.
 6. Railway Engineering Mechanical.

or

the following two :

1. Quantity Production Methods.
2. Production Planning.
9. Advanced Workshop Practice.
10. Mechanical Engineering Laboratory.
11. Machine Design.
12. Abstract.

PROGRAMME OF STUDY**DIPLOMA COURSE IN ENGINEERING****THIRD YEAR CLASS**

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	
		Theoretical	Practical
D. E. E. 2	Electrical Engineering I ...	2	—
D. E. E. 3	Electrical Engineering II ...	2	—
D. M. E. 1A	Heat Engines ...	2	—
D. M. E. 1B	Boilers, Pumps & Auxiliary Machines ...	2	—
D. E. M. 2	Applied Mechanics ...	3	9
D. D. 3	Drawing ...	—	—
D. E. E. 4	Electrical Engineering Laboratory ...	—	3
D. M. E. 2	Power House Practice ...	—	3
D. W. 3	Machine Shop ...	—	6
D. W. 3	Fitting Shop ...	—	6
Total ...		11	27

Students, who have completed the above Programme of Study and have obtained at least 50 per cent marks in the Practical Subjects of Instruction, and have satisfied the attendance rule, are allowed to appear in the Annual Examinations to be held at the end of the Academic Session by the National Council of Education, Bengal.

SUBJECTS OF EXAMINATION

DIPLOMA COURSE IN ENGINEERING

Final Examination at the end of the Third Year Class

SUBJECT	NO. OF PAPERS	FULL MARKS
Theoretical :—		
Heat Engines	1	100
Boiler, Pumps and Auxiliary Machines ...	1	100
Applied Mechanics	1	100
Electrical Engineering I	1	100
Electrical Engineering II	1	100
Drawing (6 hours)	1	100

Practical :—

Machine shop (6 hours)	—	100
Fitters' shop (6 hours)	—	100
Electric wiring (6 hours)	—	100

900

Students, who have passed in all subjects of the Final Examination of Diploma Course in Engineering subject to Rules 3 and 5 of the Examination Rules held at the end of the Third Year Class, are granted Diploma by the National Council of Education, Bengal, provided that they have passed in all subjects of the Second Year Class as well.

III. OVERSEER COURSE

(Three Years' Course)

PROGRAMME OF STUDY

First Year

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	THEORETICAL	PRACTICAL
O. M. 1	Trigonometry & Algebra ...	3	—	—
O. M. 1A	Co-ordinate Geometry and Mensuration ...	2	—	3
O. S. Ch. 1	Chemistry ...	2	—	3
O. S. P. 1	Elementary Physics ...	4	—	—
O. S. E. M. 1	Applied Mechanics I ...	3	—	—
O. S. 1	Survey I ...	2	—	—
O. S. 4	Civil Engineering I ...	4	—	9
O. S. 11	Drawing I ...	—	—	3
O. S. 14	Office Work I ...	—	—	3
	Work Shop ...	—	—	—
O. S. 16	Practical Survey I ...	4 to 6 weeks	—	—
Total ...		20	21	—

Students are required to do field-work whole day in the months of November and December.

Second Year

SUBJECTS OF INSTRUCTION		PERIODS PER WEEK	THEORETICAL	PRACTICAL
O. S. E. M. 2	Applied Mechanics II ...	3	—	—
O. S. 2	Surveying II ...	2	—	—
O. S. 5	Civil Engineering II ...	4	—	—
O. S. M. E. 1	Elementary Mechanical Engineering ...	3	—	—
O. S. E. E. 1	Elementary Electrical Engineering ...	3	—	—
O. S. 8	Estimates & Specification I ...	4	—	—
O. M. 1B	Calculus ...	2	—	12
O. S. 12	Drawing II ...	—	—	3
O. S. E. E. 2	E. E. Laboratory ...	—	—	3
O. S. M. E. 2	M. E. Laboratory ...	—	—	—
O. S. 17	Practical Survey II ...	4 to 6 weeks	—	—
Total ...		21	18	—

Third Year

	SUBJECTS OF INSTRUCTION	PERIODS PER WEEK	
		Theoretical	Practical
O. S. 10	Sanitary Engineering	... 4	—
O. S. 3	Surveying III	... 3	—
O. S. 6	Civil Engineering III	... 8	—
O. S. 9	Estimates & Specification II	... 4	—
O. S. 7	Hydraulics & Irrigation	... 4	—
O. S. 7A	Railway & Highways	... 4	—
O. S. 13	Drawing & Design	... —	12
O. S. 18	Practical Survey II	... 4 to 6 weeks	—
Total		... 27	12

Students, who have completed the above Programme of Study and have obtained at least 50 per cent marks in the Practical subjects of instruction, and have satisfied the attendance rule, are allowed to appear in the Annual Examination of the respective classes to be held at the end of the Academic Sessions by the National Council of Education, Bengal.

SUBJECTS OF EXAMINATION

Annual Examination at the end of the First Year Class

SUBJECT	NO. OF PAPERS	FULL MARKS
Co-ordinate Geometry & Mensuration	1	100
Trigonometry & Algebra	1	100
Elementary Physics	1	100
Applied Mechanics I	1	100
Surveying I	1	100
Civil Engineering I	1	100
Drawing I (6 hours)	1	100
Chemistry	1	100
Physics Laboratory	1	100
Chemical Laboratory	1	100
Workshop (Practical)	1	100
Practical Survey	1	100
		1200

Students, who pass in all subjects of the above Examination subject to Rules 3 and 5 of the Examination Rules, are promoted to the Overseer Second Year Class.

Students, who fail to pass in not more than two papers in the above Examination, will be promoted to the Overseer Second Year Class, but they will have to pass examination in those papers before they can be further promoted.

Annual Examination at the end of the Second Year Class

SUBJECT	NO. OF PAPERS	FULL MARKS
Applied Mechanics II	1	100
Surveying II	1	100
Calculus	1	100
Highways and Irrigation	1	100
Estimates and Specifications I	1	100
Drawing II (6 hours)	1	100
Electrical Engineering	1	100
Mechanical Engineering	1	100
Mech. Eng. Laboratory	1	100
Elec. Eng. Laboratory	1	100
Practical Survey	1	100

1100

Students, who pass in all subjects of the above Examination, subject to Rules 3 and 5 of the Examination Rules, are promoted to the Overseer Third Year Class.

Students, who fail to pass in not more than two papers in the above Examination, will be promoted to the Overseer Third Year Class, but they will have to pass examinations in those papers before they can be granted Certificate by the National Council of Education, Bengal.

Final Examination at the end of the Third Year Class

SUBJECT	NO. OF PAPERS	FULL MARKS
Sanitary Engineering ...	1	100
Surveying III ...	1	100
Civil Engineering III ...	2	200
Irrigation and Hydraulics ...	1	100
Railway and Highways ...	1	100
Drawing and Design (6 hours) ...	1	100
Estimates and Specification II ...	1	100
Practical Survey — ...	—	100
		900

Students, who have passed in all subjects of the Final Examination of Overseer Course, subject to Rules 3 and 5 of the Examination Rules, held at the end of the Third Year Class, are granted Certificates by the National Council of Education, Bengal, provided that they have passed in all subjects of the Second Year Class as well.

In order to pass the Final Overseer Course Examination, students who have passed the Final Survey and Draftsmanship Examination, are to appear in the following subjects:—
(i) Highway and Irrigation, (ii) Civil Engineering and (iii) Oral test of practical knowledge regarding Overseership. They will be allowed to avail of three chances to pass the Examination.

IV. AGRICULTURE COURSE

(Two Years' Course)

PROGRAMME OF STUDY

First Year Class

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK Theoretical	Practical
Ag. Ch. 1 Elementary Agricultural Chemistry	2	4
Agri. 1 Agricultural Botany ...	2	4
Agri. 2 Farm Crops (Vegetable Gardening) ...	2	10*

* 1st half year.

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK Theoretical	Practical
Agri. 4 Animal Husbandry I (first half year) ...	2	—
Agri. 5 Animal Husbandry II (second half year) ...		
Agri. 7 Soils and Fertiliser (first half year) ...	2	—
Ag. W. 1 Farm Crops II (second half year) ...		
Shop Works—		
Ag. W. 1 Carpentry (first half year) ...	—	6
Ag. W. 1 Smithy (second half year) ...		
Total ...	10	24

Second Year Class

SUBJECTS OF INSTRUCTION	PERIODS PER WEEK Theoretical	Practical
Agri. 11 Agricultural Zoology (first half year) ...	2	—
Agri. 6 Animal Husbandry III (Poultry) (first half year) ...	2	—
Agri. 10 Horticulture and Floriculture (first half year) ...	2	4
Agri. 3 Farm Crops II (first half year) ...	2	10
Agri. 12 Irrigation and Drainage (first half year) ...	2	—
Agri. 13 Agricultural Economics (first half year) ...	2	—
Agri. 9 Farm Machinery (first half year) ...	2	—
Dairy Practical ...	—	6
Total ...	14	20

During second half year students will specialise in one of the following subjects:—(a) Farm Crops, (b) Horticulture and Vegetable Gardening, (c) Dairy Husbandry.

Students, who have completed the above programme of study and have obtained at least 50 per cent marks in the prac-

tical Subjects of Instructions, are allowed to appear in the Annual Examinations of the respective classes held at the end of the Academic Session by the National Council of Education, Bengal.

SUBJECTS OF EXAMINATION

Annual Examination at the end of First Year Class

SUBJECT			NO. OF PAPERS	FULL MARKS
Chemistry	...	...	1	100
Agricultural Botany	...	...	1	100
Animal Husbandry	...	...	1	100
Agriculture	...	...	1	100
Oral and Practical	...	...	—	100

500

Students, who pass in all subjects of the above Examination, subject to Rules 3 and 5 of the Examination Rules, are promoted to the Agriculture Second Year Class.

Students, who fail to pass in not more than two papers in the above Examination, will be promoted to the Second Year Class, but they will have to pass examinations in those papers before they can be granted Certificate by the National Council of Education, Bengal.

Final Examination at the end of Second Year Class

SUBJECT			NO. OF PAPERS	FULL MARKS
Animal Husbandry	...	...	1	100
Agriculture	...	...	1	100
Horticulture & Floriculture	...	...	1	100
Agricultural Engineering	...	...	1	100
Oral and Practical	...	...	—	100

500

Students, who have passed in all subjects of the Final Examination of Agriculture Course, subject to Rules 3 and 5 of the Examination Rules, held at the end of the Second Year Class, are granted Certificate by the National Council of Education, provided that they have passed in all subjects of the First Year Class as well.

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