

**SCHEME OF STUDIES AND SYLLABUS
FOR
KERALA GOVERNMENT CERTIFICATE EXAMINATION COURSES
IN ENGINEERING
(REVISION 2003)**

[Approved as per G.O (Rt) NO.999/2003/H.Edn. dated. 16-7-2003]

Sub:

- 1. CIVIL ENGINEERING**
- 2. MECHANICAL ENGINEERING**
- 3. ELECTRICAL ENGINEERING**
- 4. AUTOMOBILE ENGINEERING**
- 5. REFRIGERATION AND AIR CONDITIONING**
- 6. RADIO AND TELEVISION ENGINEERING**
- 7. ELECTRONICS AND COMMUNICATION ENGINEERING**

**DEPARTMENT OF TECHNICAL EDUCATION
KERALA**

GOVERNEMENT OF KERALA

Abstract

Education – Technical – KGCE Course – Revised Syllabus – Approved – Orders issued

HIGHER EDUCATION (J) DEPARTMENT

G.O (Rt) No.999/2003/H.Edn.

Thiruvananthapuram, dated 16-07-2003

Read:- 1) G.O (Rt) No.641/2002/H.Edn dated 21.05.2002
2) Lr. No. 04/11234/99/DTE dated 24.06.2003
from the Director of Technical Education

ORDER

As per the Government Order read as 1st paper above Government have constituted a committee to study the present status, demand possible, new disciplines, curriculum etc of the KGCE institutions. The committee has recommended revising the syllabus of KGCE course in the existing seven branches. The Director of Technical Education as per his letter read as 2nd paper above has forwarded the revised syllabus of the KGCE course in the existing seven branches and requested to approve the same during the academic year 2003-2004 onwards.

Government have examined the revised syllabus for KGCE in the existing seven branches in detail and are pleased to approve the same as appended to this order. The revised syllabus will take effect during the academic year (2003-2004) onwards.

(By Order of the Governor)

M. RADHAKRISHNAN
UNDER SECRETARY

To

The Director of Technical Education, Thiruvananthapuram.
The Commissioner of Government Examinations, Pareeksha Bhavan,
Thiruvananthapuram
SF/OC

Forwarded / By Order

Sd/-
Section Officer

NEW PROPOSAL IN 2007-2008

REVISED SCHEME OF STUDIES AND SCHEME OF EXAMINATION FOR KERALA GOVERNMENT CERTIFICATE COURSES IN ENGINEERING.

1.1: Introduction:

Government had as per G.O (MS) No 177/85, dated 01/08/1985 ordered the discontinuance of K.G.C.E. courses, in view of their loss of relevance in the broad spectrum of Technical and Vocational education in the State. However, in pursuance of the Judgment in OP No. 3450/86 (and other OP's covered by the Judgment). Government decided that the courses should be made more useful with better emphasis on practical work, and allowed to continue. The diverse aspects relating to the revival of the KGCE course have been studied in detail and revised scheme of studies, and scheme of examination have been finalized as follows.

1.2: Branches of Study:

The overall framework and duration of the courses are being maintained without any change. But, in order to enhance the employability of the candidates, a certain amount of diversification of the courses is envisaged; along with a shift in emphasis from theoretical aspects to drawing, practical work and actual field applications. In accordance with the revised scheme, there will be KGCE courses in seven different disciplines.

1. Civil Engineering
2. Mechanical Engineering
3. Electrical Engineering
4. Automobile Engineering
5. Refrigeration & Air Conditioning
- 6 Electronics & Communication Engineering
7. Radio & Television Engineering

Under each branch, there will be four papers for examination - two theory Papers, one Drawing, and one Practical. Since the theory papers are limited to two, each one of these papers may cover more than one subject of study in the concerned discipline. Even in the theory papers, the stress will be on the practical aspects and not on theoretical exercises of a purely academic nature. The philosophy behind this is that the theory teaching is maintained at a level which is just adequate to support the requirements of the practical work. The details of minimum marks for pass are given in the scheme of evaluation.

1.3. Medium of Instruction and Examination.

The medium of instruction as well as that of examination will be both English and Malayalam.

2.1: Admission requirements.

The minimum qualification for admission to the courses will be SSLC or Equivalent.

2.2: Duration of the courses and hours of work.

The duration of the courses will be two academic years. All the Institutions conducting K.G.C.E. courses will work five days a week from Monday to Friday, except on Public holidays. The actual working hours per day will be six hours. The academic year will be from 1st July to 30th April, the months of May and June being the period of annual vacation. The institutes will remain closed during Onam and X'mas holidays, as notified by the Director of Technical Education.

The actual teaching hours per year will be at least 960. The remaining time available will be utilized for revision exercise, periodical tests and examinations and other activities.

The number of normal teaching hours will be split up as follows:

	Hrs./ Week	Total Number of hours in two years.
1. Theory Subjects 2*6 Hrs/each	12	768
2. Drawing: 1* 6 Hrs/each	6	384
3 Practicals: 1* 12 Hrs/each	12	768
Total	30	1,920

2.3.: Student intake and admission.

The normal strength of students per batch will be 45 for Civil, Mechanical, Electrical and Automobile branches. The batch strength will be 30 in the case of Air conditioning and Refrigeration, Electronics & Communication Engineering and Radio & Television Engineering. However, an excess intake not exceeding 10% of the sanctioned intake in any branch may be allowed with the prior permission of the Department. Such excess will be permitted only if the Department is convinced that the infrastructural facilities are adequate.

Admissions to the First year class will commence on 1st July and will close on 31st September each year. The list of candidates admitted containing their names and dates of birth should be communicated to the Director of Technical Education (by the institutes in the Southern Region) or to the Joint Directors of the concerned Regions (by the Institutes in the Central and Northern Regions) on or before 31st October. All the Institutes should also keep a copy of the list. All Institutes should forward registration application form for each student along with the list to the Controller of Technical Examination for getting the permanent Registration number on or before 1st December every year. It should be particularly noted that only candidates whose names appear in the admission lists and obtained permanent Registration number will be permitted to appear in

the KGC examinations. The permanent Register number allotted will be cancelled if the candidate is not applying for examination registration for the next year itself. The Director of Technical Education is the authority for the readmission of such candidates.

3.1. Control of the Institutes

All the Private Engineering Institutes in the State will be under the overall control of the Director of Technical Education. But the Institutes in the Northern and Central regions will be directly controlled by respective Joint Directors. The Institutes in Southern regions will be directly controlled by Deputy Director (General). All proceedings in respects of recognition, shifting, withdrawal of recognition etc will go in names of these officers concerned, to whom the powers stand delegated.

4.1 Recognition and Withdrawal of Recognition

An Institute which complies with the stipulated norms regarding space, staff, equipment and other infrastructural facilities may be recognized by Director of Technical Education, based on the application submitted by the concerned Principal / Manager, provided that the functioning of such an Institute running the courses applied for is found necessary in the particular location,. All related aspects such as proximity of neighboring Institutes, possibility of unhealthy competition, inadequacy of equipment etc will be considered before an Institute is accorded recognition. Duly authorized officers will inspect an Institute before it is granted recognition. The Director of Technical Education or any authorized officer may inspect an Institute. Unsatisfactory performance or non- compliance with the prescribed norms may lead to withdrawal of recognition at any time, after giving an opportunity to the Principal/ Manager to explain his position

The recognition accorded to an Institute may also be withdrawn in the event of mismanagement, malpractice, corruption, or disobedience of departmental instructions.

Further, the recognition of a division will be cancelled, if the students' strength in the first year is below 30 % of sanctioned intake for two successive years.

5.1 Staff

For handling the first and second year classes of one batch each in a branch, the minimum requirements of staff is fixed as follows.

1. Instructors (holding three year Diploma in the concerned branch of engineering and Technology. ***** 2 Nos
2. Supporting Staff (ITI /THSLC/ KGCE/ VHSE in the concerned trade) ***** 1No

5.2 Academic Work

Lesson plans, graded exercises and other teacher support materials should be prepared well in advance. Practical work should be done by the pupils only under the immediate supervision of the concerned teacher. Students should invariably maintain neat record books for all practicals. They should be regularly valued by the concerned staff and related assessment registers kept systematically.

The institutes will conduct periodical test and maintain progress cards and mark registers. At the end of the first year, the institute should conduct an examination in the lines of the KGC Examinations. Candidates who satisfy the requirements of minimum attendance shall however be promoted to the second year class.

Each student should have put in a minimum of 80% of attendance in the first year to become eligible for promotion to the II year. He should have put in a minimum of 80% attendance in the II year to become eligible for appearance in the KGC examination. It is compulsory that a student should register for the examination in the second year itself, otherwise his registration will be cancelled.

A student whose attendance in at year is below the prescribed minimum may be permitted to repeat in the same class with the permission of controlling Joint Directors. The candidate who does not put in the minimum attendance in second chance will have to discontinue the course and leave the institution.

Any student who is willfully insubordinate, mischievous or guilty of malpractice in examinations or guilty of any grave offence may be, according to the degree of the offence, be censured, suspended, or dismissed from the Institute by the Principal. Any such punishment inflicted shall be duly recorded in the Punishment Register and the fact intimated to the Joint Director.

6. Any student who is found to have secured admission by presenting false certificate shall be summarily dismissed from the institute, his fees fully forfeited, and the matter reported to the police authorities.

The scheme of evaluation shall consist of (1) Internal Assessment and (2) End Examinations in Theory, Drawing & Practical. The maximum marks for end examination and internal assessment are as follows:

	Maximum Marks	Minimum
Theory / Drawing	100	20
Practical	200	40

The end examination will normally of 180 minutes duration and that of Practicals will be 4 hrs.

Award of Internal Marks

Internal Marks will be awarded year wise (i.e. 50% for First year & 50% for second year separately)

Award of internal marks will be on a continuous evaluation method based on test, assignment and attendance in the proportion 40% for tests, 40% for assignment/project/ seminars and 20 % for attendance. There will be minimum of 3 tests and 3 assignments per year and all the 3 test papers and 3 assignments (The average marks of these three test) are taken in to account for the calculation of the internal marks.

Split up of Internal Assessment

Attendance	Below 60%	0%
	60 to below 80%	40%
	80 to below 95%	80%
	Above 95%	100%
Practical	Observation Note/Rough Record	20%
	Fair Record	20%
	Attendance (Practicals only)	20%
	Test/Interview	40%
Drawing	Timely submission, Accuracy & Neatness	40%
	Attendance (Drawing only)	20%
	Test/Interview	40%

The faculty concerned will maintain a record of all details regarding attendance and Internal assessment marks awarded in the prescribed log book. The student can represent their grievances, if any in respect of marks awarded, to the Principal. The students are required to keep a record of all their laboratory exercises performed by them in the form of a laboratory record. This record has to be authenticated by the Teacher in charge and certified by the Principal. No student will be permitted to take any practical examination without record.

Every year, the sessional marks of each year shall be published in the second week of March and entered in the Internal Mark Register before 31st March.

The total internal marks of the out going batch should be intimated to the Controller of Technical Examinations in the prescribed format (each branch in separate sheet) before 1st April of every year.

The Joint Directors/ Officers from the Controller's Office can conduct academic inspection if required.

6.1 Structure of fees

As per G.O (MS) No. 14/75/H.Edn. dated 13/01/1975, Government had, after consultation With the Director of Technical Education and the Director of Harijan welfare, prescribed uniform rates of fees to be collected by the Private Engineering Institutes.

The fees are fixed by the government.

7.1. Infrastructural facilities.

The minimum requirements of infrastructural facilities are listed in the following paragraphs.

7.2. Space.

The class rooms should have a minimum area of 40 m for strength of 45 students and 30 m for strength of 30 students.

The workshop for each discipline should have the space for conveniently arranging all the machinery and equipment and for the conduct of practical classes for all the students on rolls, without any congestion. There should be sufficient facility for proper ventilation.

7.3. Equipment.

The detailed list of minimum equipment and machinery in respect of the various branches are furnished separately, along with the syllabus.

7.4. Staff.

Details given in Para 5.1 above.

7.5 Registers and Records

The Institutes will maintain the under mentioned Registers up-to-date and they should be readily available for reference by any Inspecting Officers.

1. Admission Register
2. Attendance Register (Students)
3. Attendance Register (Staff)
4. Fee Collection Register
5. Internal Mark Register.
6. Acquittance Register.
7. Stock Register for furniture
8. Stock Register for equipment
9. Examination register (Candidates presents etc.)
10. Cash Book
11. Visitor's Book
12. Punishment Register

8.1. Student discipline.

1. No student will be admitted to Private Engineering Institute, unless his application for admission is duly countersigned by the parent/guardian.

2. Every student should attend his classes punctually. He should not leave the Institution during the working hours, without permission from the concerned teacher.

3. Every student should wear clean clothes. Tight dress is compulsory in all practical classes.

4. No student should use tobacco or any intoxicants in any form in the institution or in its premises.

9.1: Regulations for Kerala Government Certificate Examination in Engineering.

1. The Examinations will be conducted by the Controller of Technical Examinations of Kerala.
2. The examination, in accordance with the revised curricula and syllabi implemented from the academic year 2003 – 2005 will be held from 2005.
3. A candidate must secure a minimum of 40% marks in the end examinations in each Theory paper, Drawing and Practical for a pass in each subject. No separate minimum for a pass in the internal but the total mark of end examination and the internal mark together should be not less than 40% of the total of the maximum for Internal & External together for each subject.
4. (a) A candidate pass in all the subjects in one sitting securing an aggregate of 75% marks and above will be declared to have passed the examination in first class with Distinction.
(b) A candidate passing all the subject in one sitting securing an aggregate of 60 % marks and above will be declared to have passed the examination in the first class.
(c) A candidate passing in all the subject in one sitting securing an aggregate of 50 % marks and above but below 60% will be declared to have passed the examination in second Class.
(d) All other successful candidates will be declared to have passed in the examination in the Third class.
5. Candidate who fails will have to reappear for the failed subjects in the subsequent sittings.
6. Only one examination will be conducted during each year. There is no provision for revaluation. However, candidates can apply for scrutiny of marks. Certificates will be issued to all the successful candidates by the Joint controller of Technical Examinations.
7. Candidates will not be allowed to register for the examination piece meal. They shall register for all the subjects in which they have to pass either in the first or subsequent sittings. Contravention of this rule will lead to the candidates being treated as “Absent” for the entire examination.
8. A candidate will not be allowed to appeal for the examination (either Theory or Practical) for more than four chances. They will have to pass all subjects within the four chances. This Clause will be applicable for all schemes.
9. If a candidate desires to cancel his candidature for end examination, he/she should forward duly filled application form recommended by the Principal of the Institution where the candidate studied so as to reach the office of the Controller

of Technical Examination within 10 days after the completion of the last Theory/ Drawing Examination. Cancellation is allowed only once. Candidates reported for mal practice will not be eligible for cancellation.

10. Disputes;

Any dispute arising out of the Rules and Regulations stipulated here in will be decided by the Director of Technical Examination. So also any matter not specifically covered by this scheme will be decided appropriately by the Director of Technical Education.

SCHEME OF K.G.C. EXAMINATION IN ENGINEERING (REVISION 2003)

CIVIL ENGINEERING

(DURATION OF THE COURSE: 2 YEARS)

Paper	Code No	Subject	Total Hrs	Hrs/Week	Hrs of Exam	Internal Evaluation Marks	Written Exam Marks	Maximum Marks
I	KCC 101	Building Materials, Construction, Earthwork & Estimation	384	6	3	20	100	120
II	KCC 102	Surveying and Leveling, P.H.E., Irrigation & Highway	384	6	3	20	100	120
III	KCC 103	Drawing	384	6	3	20	100	120
IV	KCC 104	Survey Practical	768	12	6	40	200	240
Total			1920	30	-	100	500	600

Paper – I Building Materials, Construction, Earthwork & Estimation

Paper – II Surveying and Leveling, P.H.E., Irrigation & Highway

Paper – III Drawing

Paper – IV Survey Practical

SCHEME OF K.G.C. EXAMINATION IN ENGINEERING (REVISION 2003)

MECHANICAL ENGINEERING

(DURATION OF THE COURSE: 2 YEARS)

Paper	Code No	Subject	Total Hrs	Hrs/Week	Hrs of Exam	Internal Evaluation Marks	Written Exam Marks	Maximum Marks
I	KCM 101	Workshop & Materials Technology	384	6	3	20	100	120
II	KCM 102	Mechanical & Electrical Engineering	384	6	3	20	100	120
III	KCM 103	Mechanical Engineering Drawing	384	6	3	20	100	120
IV	KCM 104	Workshop Practice	768	12	6	40	200	240
Total			1920	30	-	100	500	600

Paper – I Workshop & Materials Technology

Paper – II Mechanical & Electrical Engineering

Paper – III Mechanical Engineering Drawing

Paper – IV Workshop Practice

SCHEME OF K.G.C. EXAMINATION IN ENGINEERING (REVISION 2003)

ELECTRICAL ENGINEERING

(DURATION OF THE COURSE: 2 YEARS)

Paper	Code No	Subject	Total Hrs	Hrs/Week	Hrs of Exam	Internal Evaluation Marks	Written Exam Marks	Maximum Marks
I	KCE 101	Basic Electrical & Electronics	384	6	3	20	100	120
II	KCE 102	Power Estimation	384	6	3	20	100	120
III	KCE 103	Engineering Drawing	384	6	3	20	100	120
IV	KCE 104	Practical	768	12	6	40	200	240
Total			1920	30	-	100	500	600

Paper – I Basic Electrical & Electronics

Paper – II Power Estimation

Paper – III Engineering Drawing

Paper – IV Practical

SCHEME OF K.G.C. EXAMINATION IN ENGINEERING (REVISION 2003)

AUTOMOBILE ENGINEERING

(DURATION OF THE COURSE: 2 YEARS)

Paper	Code No	Subject	Total Hrs	Hrs/Week	Hrs of Exam	Internal Evaluation Marks	Written Exam Marks	Maximum Marks
I	KCE 101	Automobile Engines	384	6	3	20	100	120
II	KCE 102	Automobile Chasis Transmission	384	6	3	20	100	120
III	KCE 103	Automobile Engineering Drawing	384	6	3	20	100	120
IV	KCE 104	Automobile Practical	768	12	6	40	200	240
Total			1920	30	-	100	500	600

- Paper – I Automobile Engines
- Paper – II Automobile Chasis Transmission
- Paper – III Automobile Engineering Drawing
- Paper – IV Automobile Practical

SCHEME OF K.G.C. EXAMINATION IN ENGINEERING (REVISION 2003)

REFRIGERATION & AIR CONDITIONING

(DURATION OF THE COURSE: 2 YEARS)

Paper	Code No	Subject	Total Hrs	Hrs/Week	Hrs of Exam	Internal Evaluation Marks	Written Exam Marks	Maximum Marks
I	KCR 101	Mechanical & Electrical Engineering	384	6	3	20	100	120
II	KCR 102	Refrigeration & Air Conditioning	384	6	3	20	100	120
III	KCR 103	Engineering Drawing	384	6	3	20	100	120
IV	KCR 104	Refrigeration & Air Conditioning Lab	768	12	6	40	200	240
Total			1920	30	-	100	500	600

Paper – I Mechanical & Electrical Engineering

Paper – II Refrigeration & Air Conditioning

Paper – III Engineering Drawing

Paper – IV Refrigeration & Air Conditioning Lab

SCHEME OF K.G.C. EXAMINATION IN ENGINEERING (REVISION 2003)

RADIO & TELEVISION ENGINEERING

(DURATION OF THE COURSE: 2 YEARS)

Paper	Code No	Subject	Total Hrs	Hrs/Week	Hrs of Exam	Internal Evaluation Marks	Written Exam Marks	Maximum Marks
I	KCT 101	Basic Electronics & Radio Engineering	384	6	3	20	100	120
II	KCT 102	Television Engineering	384	6	3	20	100	120
III	KCT 103	Electronics Drawing	384	6	3	20	100	120
IV	KCT 104	Electronics Practical	768	12	6	40	200	240
Total			1920	30	-	100	500	600

Paper – I Basic Electronics & Radio Engineering

Paper – II Television Engineering

Paper – III Electronics Drawing

Paper – IV Electronics Practical

SCHEME OF K.G.C. EXAMINATION IN ENGINEERING (REVISION 2003)

ELECTRONICS & COMMUNICATION ENGINEERING

(DURATION OF THE COURSE: 2 YEARS)

Paper	Code No	Subject	Total Hrs	Hrs/Week	Hrs of Exam	Internal Evaluation Marks	Written Exam Marks	Maximum Marks
I	KCR 101	Basic Electronics & Circuits	384	6	3	20	100	120
II	KCR 102	Communication Engineering	384	6	3	20	100	120
III	KCR 103	Electronics Drawing	384	6	3	20	100	120
IV	KCR 104	Electronics Practical	768	12	6	40	200	240
Total			1920	30	-	100	500	600

Paper – I Basic Electronics & Circuits

Paper – II Communication Engineering

Paper – III Electronics Drawing

Paper – IV Electronics Practical