

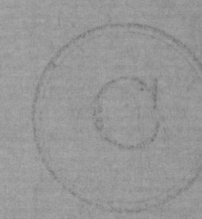
# Educational (1900) Department.

ORDINARY MS.

G.O., No. 443

DATED 9. 8. 01

INDEXED



-6-

[Despatch Abstract.]

Approving the revised Syllabus in mathematics for the Engineer Subordinate Class, College of Engineering, & requesting the S.P.I. to submit the draft of allocations to be made in the rules of the College.

# BACK PAPERS.

| G.O. | No. | Department. | Date. | G.O. | No. | Department. | Date. |
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# FURTHER PAPERS.

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2,000-5-11-00.

# Educational (190/ ) Department.

CURRENT No. 1049

From

[Name] The Honble Mr. G. H. Stuart, M.A.

[Designation] Director of Public Instruction,

[Station] Madras

DESPATCHED  
1 AUG. 1901

Ref. No. 3014 of 01.

Received 2 AUG. 1901

Dated 1<sup>st</sup> August 1901.

Enclosures one

Registered 2.8. 1901.

SUBJECT.

Submitting a revised syllabus in Mathematics for the Engineer Subordinate class in modification of the one sanctioned in G. O. No. 444, Edul. of 22 July 1896.

# BACK PAPERS.

for 366: 28.6.01 copy  
" 444: 22.7.96 M.

# FURTHER PAPERS.

To

The Secretary to Government,

Educational Department.

Sir,

I have the honour to submit, for the sanction of Government, a revised draft syllabus in Mathematics for the Engineer Subordinate class in modification of the one sanctioned in G.O. No 444, Educational, dated 22nd July 1896.

2. The necessity for the revision is thus explained by Lt. Col.

Love:-

"Experience shows that the students of this College, and especially those of the Engineer Subordinate class, fail to apply their mathematical knowledge in a rational manner to the solution of Engineering problems. For example, they use vulgar in preference to decimal fractions; if called on to employ decimals they work out results to a number of decimal places not justified by the circumstances of the problem; they have no idea of approximation or of degree of accuracy. I am of opinion that a remedy will be found in making the mathematical course more practical."

Hence the re-introduction among other changes of Arithmetic into the syllabus.

3. I beg to propose that the new syllabus be introduced from 1st July 1902 when a fresh batch of Engineer Subordinate students will join the College.

4. The proposed change will necessitate a re-allotment of marks under I. Mathematics in Article 16 of the Rules of the College of Engineering, and I shall submit a draft of the

necessary alterations to Government on receipt of orders on this letter.

I have the honour to be,

Sir,

Your most obedient servant,

G. H. Stuart

Director of Public Instruction.

Revised draft syllabus in Mathematics for the Engineer  
Subordinate class.

I Mathematics-Marks 350.

A. Arithmetic (50). Use of decimals in preference to vulgar fractions for practical calculations. Degree of accuracy of measurements. Contracted multiplication and division.

Labour saving methods; (1) use of tables of squares, cubes, square roots and cube roots; evaluation of the forms  $\frac{a}{\sqrt{b}}$ ,  $\frac{a}{\sqrt[3]{b}}$ ,  $\sqrt{\frac{a}{b}}$ ,  $\sqrt[3]{\frac{a}{b}}$ ,  $\frac{a+\sqrt{b}}{c+\sqrt{d}}$ ; (2) use of logarithms and antilogarithms in multiplication and division, involution and evolution.

B. Algebra (80). Factorisation. Simplifications. Rules of indices. Easy problems leading to simple and quadratic equations.

Determination of constants in equations of known form such as  $y = ax + b$ ,  $y = ax^2 + bx + c$ . Arithmetical progression; Geometrical progression.

Coordinates of a point in a plane. Plotting observations on a section paper. Probable intermediate values.

Plotting of simple functions, such as  $y = mx$ ,  $y = mx + n$ ,  $y = x^2$ ,  $y = ax^2 + bx + c$ ,

$y = (x-a)(x-b)$ ,  $y = (x-a)(x-b)(x-c)$ . Use of section paper for obtaining maximum and minimum values and roots of equations.

/Note-The coefficients in equations like  $y = ax^2 + bx + c$ , &c will be numerical. Discussion of the forms of graphs for different values of  $a, b, c$  is not required./

C. Geometry (50). The inscribed, escribed and circumscribed circles of a triangle. To describe the following regular polygons (1) on a given base, (2) in a given circle, (3) about a given circle; (a) square, octagon, (b) hexagon, equilateral triangle, dodecagon, (c) decagon, pentagon, quindecagon. The in and circumscribed circles of regular figures. Area of a

parallelogram = base X altitude; area of triangle =  $\frac{1}{2}$  base X altitude. Deduce Euclid VI 1 and Corollary. Euclid VI 2, 9 to 13, 3, A. To describe a triangle equiangular to a given

triangle (1) on a given base, (2) in a given circle (3) about a given circle. Euclid VI 4, B, C, D, 24. Ratio of two triangles or parallelograms having one angle of the one equal to one angle of the other. Similar triangles are to one another as the squares on the homologous sides or lines. Ratios of similar figures and solids. Euclid VI. 5, 6, 26. Explanation of

the enunciation of VI 33 and illustrations.

/Note-The Geometrical analogues of the propositions in Algebra relating to four quantities in proportion will be assumed/

D.Mensuration (80). Rule for length of circumference of a circle.

Rules for area of triangle, parallelogram, circle, sector and segment of circle. Area of irregular plane figure by midordinate rule

and Simpson's rule. Rules for surface and volume of prism, cylinder, cone sphere and ring. Volume of an irregular solid by plotting ordinates representing areas of cross sections.

Estimation of areas, surfaces and volumes from actual measurements of objects. Measurement of areas and volumes by weight or displacement. Meaning of Specific Gravity. Calculation of the weight of a body when its volume and specific gravity are known.

E.Plane Trigonometry (90). Measurement of angles in degrees and radians. Definitions of sine, cosine etc, and graphic determination of their volumes.

Setting out angles from values of sine, cosine etc. Use of tables of natural sines, cosines etc.

Solution of right angled triangles by calculation and drawing.

Formulae for the sine, cosine and tangent of the sum and difference of two angles, and of the double and half angle.

Other simple formulae required in the solution of triangles.

Use of logarithmic tables. Solution of triangles. Heights and distances.

/Note-Four-figure tables of logarithms only will be used; angles will be estimated only to minutes./

Cur: No. 1049, from the Dir: of Pub: Instrn., Ref. on C.No.3014,d/ 1-8-01.

Order (Misc.)

P.W.Deptt. for acceptance.

The revised syllabus in mathematics for the Engineer subordinate class is approved. It will be introduced from the 1st July 1902.

2. The draft which the Director has promised of alterations to be made in the rules of the college will be awaited.

Edl us. 129 & dated 6<sup>th</sup> Augt 01.

To the Dir: of Pub: Instrn.

Quell 1049

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CURRENT No.

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT . . . . . A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

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