

KANNUR UNIVERSITY

(Abstract)

B.Sc Mathematics Course-Scheme and Syllabus effective from 2007 admission-Modifications effected in Paper VI (Elective A3) Topology& Paper VII (Elective B3) Discrete Mathematics-Implemented-Orders issued.

ACADEMIC BRANCH

U.O.No.Acad/C2/13650/2009(1)

Dated, K.U.Campus.P.O,04 -12-2009.

Read:1. U.O.No Acad/C2/2390/2007 dated 22-08-2007 & 08-09-2009.

2. Minutes of the meeting of the Board of Studies in Mathematics (UG) held on 23-11-2009.

3.Letter dated 23-11-2009 from the Chairman, BOS in Mathematics(UG).

ORDER

1.As per paper read (1) above, the revised Scheme and Syllabus of B.Sc Mathematics Course was implemented and Paper III ‘Mathematical Analysis’ was subsequently modified with effect from 2007 admission.

2.The Board of Studies in Mathematics(UG),vide paper read (2) above, recommended to modify the Syllabus of Paper VI Elective A3 ‘Topology’ & Paper VII Elective B3 ‘Discrete Mathematics’ of B.Sc Mathematics Main, with effect from 2007 admission by deleting certain portions in Unit III and a change in the distribution of marks for Elective B3.

3.The Chairman, Board of Studies in Mathematics (UG),vide paper read (3) above, has forwarded the modified version of the syllabus of Paper VI (Elective A3) Topology & Paper VII (Elective B3) Discrete Mathematics for implementation with effect from 2007 admission, as per the recommendation of the Board of Studies.

4. The Vice-Chancellor, after considering the matter in detail and in exercise of the powers of the Academic Council, as per Section 11 (1) of Kannur University Act 1996 and all other enabling provisions read together with, has accorded sanction to modify the syllabus of B.Sc Mathematics Course as per the recommendation of the Board of Studies in Mathematics (UG),subject to report to the Academic Council.

5. The following orders are therefore issued in this regard:

i) To delete Theorems 9.4 and 9.5 of section 2.9 & examples 1,2 and 3 of section 2.10 of Chapter II; and Theorem 1.6 of section 3.1 of Chapter III from Unit III of the Text Book ‘Topology-A First Course’ by J.R Munkres, the prescribed Text Book for Paper VI-Elective A3 ‘Topology’.

ii) To delete 2.6, 2.7 and 2.8 of Chapter II; 3.4 of chapter III;4.7 of Chapter IV and Chapter V from Unit III Formal Languages & Automata of the prescribed Text book,

'Introduction to Automata Theory, Languages and Computation' by Jettrey.D.Ullman and John E.Hopcroft for Paper VII (Elective B3) Discrete Mathematics.

iii) The above modifications will be effective from 2007 admission onwards.

6. The modified Syllabus of Paper VI Elective A3 'Topology' & Paper VII Elective B3 'Discrete Mathematics', are appended.

7. The U.Os read (1) above stand modified to this extent.

8. Orders are issued accordingly.

Sd/-
REGISTRAR

To:

The Principals of Colleges offering B.Sc Mathematics Course.

Copy to:

1. The Examination Branch (through PA to CE).

2. The Chairman, Board of Studies in Mathematics (UG). Forwarded/By Order

3. PS to VC/PA to PVC/PA to Registrar.

4. DR/AR-I (Academic). SECTION OFFICER

5. SF/DF/FC

PAPER VI ELECTIVE A3 – TOPOLOGY

This Paper is divided into THREE units as detailed below.

Unit	Teaching hours	Aggregate marks	Maximum marks
Unit I	40	30	20
Unit II	40	30	20
Unit III	40	35	20
Total	120	95	60

Text: Munkres, J.R., TOPOLOGY A first course, Prentice hall of India, New Delhi.

UNIT I

1. Topological spaces.
2. Basis for a topology.
3. The order topology.
4. The product topology on $X \times Y$.
5. The subspace topology.
(Chapter 2, sections 2.1, 2.2, 2.3, 2.4, 2.5)

UNIT II

6. Closed sets and limit points.
7. Continuous functions.
(Chapter 2, sections 2.6, 2.7)

UNIT III

8. Metric topology.
9. Connected spaces.
10. Connected sets in the real line.
11. Compact sets.
12. Compact sets in the real line.
(Chapter 2-Section 2.9 excluding Theorem 9.4 & 9.5; Section 2.10 excluding Example(1), (2)&(3); Chapter 3- Sections 3.1, 3.2, 3.5, 3.6 excluding Theorem 1.6 of Section 3.1)

References

- [1] Willard, S., General topology, Addison-Wesley publishing company.
- [2] Dugundji, J., Topology, Allyn and Bacon, Boston.
- [3] Simmons, G.F., Topology and modern analysis, Tata McGraw hill company.

Distribution of internal marks:

- Attendance : 3 marks
 Assignments : 6 marks
 Tests/oral/seminar : 6 marks

PAPER VII - ELECTIVE B3 DISCRETE MATHEMATICS

This Paper is divided into THREE units.

Unit	Topic	Teaching Hours	Agg.Marks	Max Marks
Unit I	Graph theory	50	40	25
Unit II	Boolean Algebra and Logic	20	25	15
Unit III	Formal Languages and Automata	50	30	20
Total		120	95	60

UNIT I – GRAPH THEORY

Text: John.C, and Holten, D.A., A first look at graph theory, Allied publishers (1991).

Definitions of graphs, graphs as models, more definitions, vertex degrees, subgraphs, paths and cycles, matrix representation of graphs, fusions.

Trees, bridges, spanning trees, connector problems, cut vertices and connectivity.

Euler tours, The Chinese postman problem, Hamiltonian graphs, the travelling salesman problem (algorithm deleted)

Matchings, augmenting path, the marriage problem, Hall's marriage problem, personal assignment problem (algorithm deleted), optimal assignment problems (algorithms deleted).

(Chapters 1,2,3,4. Section 2.5 is omitted. Exclude algorithms)

UNIT II - BOOLEAN ALGEBRA AND LOGIC

Text: Lipchitz, Set theory, Schaum series.

Boolean Algebra: Definition, duality in Boolean Algebra, order in Boolean Algebra, switching circuit designs.

Logic: Algebra of propositions, statements, conjunction, disjunction, negation, conditional, bi-conditional, tautologies and contradictions, logical equivalence, logically true and logically equivalent statements, quantifiers, propositional functions and truth sets, universal quantifier, existential quantifier, negation of propositions which contain quantifier, counter examples, propositional functions containing more than one variable.

UNIT III - FORMAL LANGUAGES AND AUTOMATA

Text: Introduction to Automata Theory, Languages and Computation,

(Jeffery.D.Ullman&John E Hoperoft(Narosa).

Chapter 2-Finite Automata and Regular Expressions (Sections2.2 to 2.5)

Chapter 3-Properties of Regular Sets (Section 3.1 to 3.3)

Chapter 4-Context-Free Grammars (Sections 4.1 to 4.6)

References

- [1] Bondy, J.A. and Murthy, Graph Theory with Applications, Mac Millian.
- [2] Wilson, R.J., Introduction to Graph Theory.
- [3] Stoll, R.R., Set Theory and Logic, Errasia publishers, New Delhi.
- [4] Roson, K.H., Discrete Mathematical Structures.
- [5] Reverz, G.E., Introduction to Formal Language, Mc Graw Hill.

Distribution of internal marks

Attendance : 3 marks
 Assignments : 6 marks
 Tests/oral/seminar : 6 marks.
