Course Specifications

Programme(s) on which the course is given   Pre- Master pure
Mathematics

Major or Minor element of programme   Major

Department offering the programme   Mathematics

Department offering course   Mathematics

Academic year / Level   Post graduate

Date of specification approval   2010 – 2011

A. Basic Informations.

Title : General Topology   **Code** : M 6114

Credit Hours : 2   **Lecture** : 2 hours

Tutorial :   practical   **Total** : 2 hours

B. Professional Information.

1- Overall aims of course

The course is am axiomatic and abstract branch of pure mathematics . the aim of is to give an introduction to the courses of Algebraic Topology , Differential Topology , Topological Groups , Functional Analysis …etc . Students will know that this branch is a generalization of Geometric concepts , and some analysis concepts such as continuity and homeomorphisms .**2 – Intended learning outcomes of course (ILOS)**

a –Knowledge and understanding.

The student will be able to :

(a1) Have the knowledge about some classes of compact spaces such as locally compact spaces. Paracompact spaces .

(a2) Study the concept of product spaces, quotient spaces and sum of spaces .

(a3) Study the concept of extensions of topological spaces and compactifications .

(a4) Learn other methods of separations axioms such as T_5 and T_6 spaces .

(a5) Study the concept convergence o in topological spaces and in particular the nets and ultrafilters .

(a6) Learn the concept of metric and metrizable spaces and their properties .

(a7) Study the concept of uniform spaces and their properties .

b- Intellectual skills .

(b1) Understand the concept of extensions of topological spaces

(b2) Understand the locally compact spaces , Paracompact spaces and uniform spaces .

c- Professional and practical skills.

(c1) Solve exercises on Paracompact spaces , compactifications and uniform topological spaces

(c3) List the properties of the classes of compact spaces and the relation between them .

d- General and transferable skills.

(d1) Use the knowledge of the basic concepts of extensions, compactifications , ….for studying the other branches of mathematics such as linear vector spaces , ….

3 – Contents

Topics	No. of hours	Lectures	Tutorial/practical
Locally compact spaces , locally finite families and the Paracompact spaces – perfect mappings.	**6**	**3**	
The hereditarily normal spaces and perfectly normal spaces . Nets and filters in topological spaces.	**6**	**3**	
Operations on topological spaces , in particular we study product spaces . quotient spaces and sum of spaces and investigate their properties.	**6**	**3**	
Extensions of topological spaces , , in particular Stone – Cech compactifications βX.	**6**	**3**	

The uniform spaces and study the properties of such spaces .	**4**	**2**

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4-Teaching and learning methods

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(4-1) Blackboard.

(4-2) Data – show.

5-Student assessment methods

(5-1) Periodic tests.

(5-2) Mid-term examination.

(5-3) Oral tests.

(5-4) Final examination.

6- Assessment schedule

(6-1) Assessment 1, periodic tests   in the second, sixth, tenth week

(6-2) Assessment 2, Mid-term examination   in seventh week

(6-3) Assessment 3, Oral tests   in any time as its Possible .

(6-4) Assessment 4, Final examination   in fourteenth week.

7- Weighting of assessments

(7-1) Periodic tests	10%
(7-2) Mid-term examination	20%
(7-3) Oral examination	10%
(7-4) Final examination	60%
Total	100%

Any formative only assessments

8- List of References

(8-1) Course notes

(8-2) Essential books such as :

- Attia.H, Introduction to General Topology, Cairo – 2011.

 (8-3) Recommended books

- Kelley.J.L, General Topology , New York – 1955.
- Dugundji .J, Topology, Prentice-Hall of India -New Delhi – 1975.

- Engelking.R,General Toplogy, Warszawa -1975.
- Thron.JnWolfgang , Topological Structures ,Holt, Rinehart and Winston -1966.

(8-4) Periodicals , Websites , …..etc.

9 – Facilities Required for Teaching and Learning

Course coordinators : Dr. Hosny attia and D. Maha abd Elfatah

 Head of Department : Prof. Dr . Mohamed A. Ramadan

Date :   /   /