

Ministry of Higher Education and Scientific research  
Department of Mathematic

College of ...Education

University of Salahhadin

Subject: General topology

Course Book

Lecturer's name Dr. Nehmat K. Ahmed

Academic Year: 2023/20124 **First course**



## Course Book

1. Course name	G. topology
2. Lecturer in charge	Dr Nehmat K. Ahmed
3. Department/ College	Mathematic: Education
4. Contact	e-mail: nehmat.ahmed@us.edu.krd Tel: (optional)07504511977
5. Time (in hours) per week	Theory: three Hours per a Week Practical:0
6. Office hours	10-12 Mon. And 9-11 Win. In each week.
7. Course code	
8. Teacher's academic profile	2009-2013 Ph.D. In Mathematics (by course and research): Department of Mathematic College of Education University of Salahddin\Erbil \Iraq Thesis Title: "On some types of semi open sets in topological spaces" Supervisor: Prof. Dr. Alias B. Khalaf 1989 - 1990 M.Sc. In Mathematics (by course& research) ‘ Department of Mathematic College of Education University of Salahddin\Erbil \Iraq

	<p>Thesis Title: ‘ On some types of separation axioms’  1981 -1985 B.Sc. in General Mathematics  University of Salahddin  College of Education  Department of Mathematic  <b>Employment History</b>  2003 - Assistant Prof.  University of Salahaddin  College of Education  Department of Mathematic  1999 - 2003 Lecturer  University of Salahaddin  College of Education  Department of Mathematic  1990 - 1999 Assistant lecture  University of Salahaddin  College of Education  Department of Mathematic I taught the following subjects:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> General Topology; Fourth year Mathematics.</li> <li><input type="checkbox"/> Foundation of Mathematics; First year Mathematics.</li> <li><input type="checkbox"/> Mathematical Analysis; Third year Mathematics.</li> <li><input type="checkbox"/> Differential and Integral Calculus; First year Mathematics.</li> <li><input type="checkbox"/> Linear Algebra: Second year Mathematics.</li> <li><input type="checkbox"/> Selected Topics in Topology , M.Sc. Mathematics.</li> </ul> <p><b>Research and publications</b></p> <ol style="list-style-type: none"> <li>1. On <math>\alpha</math>-continuous and <math>\alpha</math>-open function, Education college journal;</li> <li>2. On rs-continuous function and semi-T<sub>2</sub>-space, Salahaddin university journal;</li> <li>3. On <math>\delta^*</math>-compact space, Duhok university journal;</li> <li>4. Strongly Semi – Continuous function, Journal of dohuk University 2001</li> <li>5. Same equivalents in a Topological Space, zanco journal of pure and applied sciences</li> </ol> <p>2002</p> <ol style="list-style-type: none"> <li>6. On function with semi <math>\theta</math>-closed and irresolute semi <math>\theta</math>-closed graph; Duhok university journal; 2004</li> <li>7. On <math>p\delta</math>-open set and <math>p\delta</math>-continuous function, Salahaddin university journal.</li> <li>8- On <math>p\theta</math> -open set and <math>p\theta</math> -continuous function, Journal of Kirkuk University, 2007, <a href="https://www.iasj.net/iasj/download/5993253f3abaafaf">https://www.iasj.net/iasj/download/5993253f3abaafaf</a></li> <li>9. <math>S\beta</math>-open sets and <math>S\beta</math> continuity, Thai Journal of Mathematics; 2012, <a href="http://thaijmath.in.cmu.ac.th/index.php/thaijmath/article/view/512">http://thaijmath.in.cmu.ac.th/index.php/thaijmath/article/view/512</a></li> </ol>
--	--

	<p>10. weak separation axioms and function with <math>S\beta</math> closed graphs, International Journal Of Mathematical Sciences and Engineering Applications (India);</p> <p>11. <math>S\beta</math> compact and <math>S\beta</math> closed spaces, International Journal of Scientific and Engineering Research;</p> <p>12. <math>S\beta</math> Para-compact spaces, Journal of Advanced Studies in Topology (Egypt); 2013, <a href="https://www.researchgate.net/profile/Nehmat-Kahmed/publication/340267141_document/links/5e810bf492851caef4ac9858/document.pdf">https://www.researchgate.net/profile/Nehmat-Kahmed/publication/340267141_document/links/5e810bf492851caef4ac9858/document.pdf</a></p> <p>13. <math>S\beta</math> compact sets and <math>S\beta</math> locally compact spaces, Journal of Advanced Studies in Topology; 2013, <a href="https://www.academia.edu/download/84014350/531-Article_Text-4067-2-10-20180403.pdf">https://www.academia.edu/download/84014350/531-Article_Text-4067-2-10-20180403.pdf</a></p> <p>14- <math>\tilde{pc}</math> -OPEN SETS and <math>\tilde{pc}</math> -CONTINUITY in SOFT TOPOLOGICAL SPACES, ZANCO Journal of Pure and Applied Sciences, 2018, <a href="https://zankojournal.su.edu.krd/index.php/JPAS/article/view/2342">https://zankojournal.su.edu.krd/index.php/JPAS/article/view/2342</a></p> <p>15- Characterizations of <math>\tilde{pc}</math> -Open Sets and <math>\tilde{pc}</math> - almost Continuous Mapping in Soft Topological Spaces, Eurasian Journal of Science &amp; Engineering ISSN 2414-5629 (Print), ISSN 2414-5602 (Online); 2018, <a href="https://scholar.google.com/scholar?cluster=9790584133587420078&amp;hl=en&amp;oi=scholar">https://scholar.google.com/scholar?cluster=9790584133587420078&amp;hl=en&amp;oi=scholar</a></p> <p>16-On Soft <math>pc</math>-Separation Axioms, Demonstr. Math.; 2020 , <a href="http://dx.doi.org/10.1515/dema-2020-0003">http://dx.doi.org/10.1515/dema-2020-0003</a></p> <p>17-On Soft <math>pc</math> -Regular and Soft <math>pc</math> -Normal Spaces, Italian journal of pure and applied mathematics; (Accepted for publication)</p> <p>18- On Soft <math>pc</math>-Connected Spaces, Iraqi Journal of Science;2020, <a href="http://dx.doi.org/10.24996/ij.s.2020.61.11.28">http://dx.doi.org/10.24996/ij.s.2020.61.11.28</a></p> <p>19-On Soft <math>Pc</math>-Compact Spaces, New Mathematics and Natural Computation 2022, Vol. 16, No. 3; <a href="http://dx.doi.org/10.1142/s1793005720500283">http://dx.doi.org/10.1142/s1793005720500283</a></p> <p>20- Soft Separation Axioms and Functions with Soft Closed Graphs, Proyecciones (Antofagasta) 2022 Journal of Mathematics Vol. 41, No 1; <a href="http://dx.doi.org/10.22199/issn.0717-6279-4004">http://dx.doi.org/10.22199/issn.0717-6279-4004</a></p> <p>21-On nano <math>S\beta</math> -open sets in nano topological spaces, General Letters in Mathematics; 2022, <a href="http://dx.doi.org/10.31559/glm2022.12.1.3">http://dx.doi.org/10.31559/glm2022.12.1.3</a></p> <p>22- Soft pre Separation Axioms and Functions with Soft pre-Closed Graphs, General Letters in Mathematics; 2022,</p>
--	---

	<p><a href="http://dx.doi.org/10.31559/glm2022.12.2.4">http://dx.doi.org/10.31559/glm2022.12.2.4</a></p> <p>23- Nano SC-Open Sets in Nano Topological Spaces, Ibn AL-Haitham Journal For Pure and Applied Sciences 2023 <a href="https://jih.uobaghdad.edu.iq/index.php/j/article/view/2958">https://jih.uobaghdad.edu.iq/index.php/j/article/view/2958</a>.</p> <p>24- Nano S<math>\beta</math>-Connectedness in Nano Topological Spaces, Al-Mustansiriyah Journal of Science 2023 <a href="https://doi.org/10.23851/mjs.v34i2.1245">https://doi.org/10.23851/mjs.v34i2.1245</a></p> <p>25- On pre-topological BCK-algebras, Journal of Algebra and Related Topics 2023, <a href="https://jart.guilan.ac.ir/article_6796.html">https://jart.guilan.ac.ir/article_6796.html</a></p> <p>26- Nano <math>S\beta</math> -operators And Nano -continuity in Nano Topological Spaces, <i>The Journal of University of Duhok</i> 2023 , <a href="http://dx.doi.org/10.26682/sjuod.2023.26.1.1">http://dx.doi.org/10.26682/sjuod.2023.26.1.1</a></p> <p>27- Some Separation Axioms Via Nano S<math>\beta</math>-open sets in Nano Topological Spaces, <i>Italian Journal of Pure and Applied Mathematics</i>, Accepted for publication</p> <p>Membership of</p> <p><input type="checkbox"/> Committeeman of Scientific and postgraduate study;</p> <p><input type="checkbox"/> Committeeman of undergraduate Examination.</p> <p>Languages:</p> <p><input type="checkbox"/> Kurdish;</p> <p><input type="checkbox"/> Arabic ;</p> <p><input type="checkbox"/> English</p>
<p><b>9.</b> <b>Keywords</b></p>	
	<p><b>10. Course Programmer</b></p> <p><b><i>First Corse</i></b></p> <p><b>Week 1-3: Introduction to the concept of topological spaces.</b></p> <p><b>Week 4-6: Sets in topological space: neighborhood at a Limit point, interior, closure, exterior and boundary concepts and Kuratowski axioms.</b></p> <p><b>Week7-8: Bases and sub-bases for topological spaces.</b></p>

**Week 9: Count-ability axioms: First and second axioms of Count-ability.**

**Week 10: relative topology, Subspaces and hereditary property.**

**11. Course objective:**

**The course will cover:**

- 1- The fundamentals of general topology in logical order processing from the most general case of a topological space.**
- 2- The topological concepts like (interior, exterior, cluster, adherence and boundary) points in other spaces differ from spaces related with the set of real numbers.**
- 3- Types of mappings between topological spaces like continuity which takes an important area in mathematics.**
- 4- Topological notions like compactness, connectedness and denseness are as basic to mathematicians of today as sets and functions.**
- 5- Metric spaces as a topological space to study different concepts like metrizable, isometry, diameter and distance between set to set and set to point.**
- 6- The concept of productivity between topological spaces.**