A tree with a couple of dogs

Description automatically generated

**Application for Curriculum Courses**

**Name of the Applicant:**

**Program interested in:**

**Certificate in Graduate Physics**

**Certificate of Advanced Studies in Theoretical Physics**

**Certificate of Advanced Studies in Complexities**

1. **Certificate in Graduate Physics:**

NWTP 511 Classical Dynamics 2 (2-0-4)

NWTP 512 Quantum Mechanics 2 (2-0-4)

NWTP 521 Equilibrium Thermodynamics and Phase Transitions 2 (2-0-4)

NWTP 531 Fluid Dynamics 2 (2-0-4)

NWTP 501 Mathematical Methods of Physics 2 (2-0-4)

NWTP 502 Green’s Functions and Propagations 2 (2-0-4)

NWTP 503 Numerical Methods in Physics 2 (2-0-4)

NWTP 513 Classical Electrodynamics 2 (2-0-4)

NWTP 522 Equilibrium Statistical Mechanics and Kinetic Theory 2 (2-0-4)

NWTP 532 Vibrations and Waves 2 (2-0-4) NWTP 551 Special Relativity 2 (2-0-4**)**

1. **Certificate of Advanced Studies in Theoretical Physics**

NWTP 601 Integrable System 2 (2-0-4)

NWTP 611 Classical Field Theory 2 (2-0-4)

NWTP 612 Relativistic Quantum Mechanics 2 (2-0-4)

NWTP 613 Quantum Mechanics and Path Integrals 2 (2-0-4)

NWTP 614 Particles and Fields 2 (2-0-4**)**

**(not more than one of these five courses can contribute to the requirement)**

NWTP 702 Symmetries and Lie Algebra in Physics 2 (2-0-4)

NWTP 711 Relativistic Quantum Fields I 3 (3-0-6)

NWTP 712 Relativistic Quantum Fields II 3 (3-0-6)

NWTP 713 Soliton and Instanton 3 (3-0-6)

NWTP 714 Quantum Fields in Curved Spacetime 3 (3-0-6)

NWTP 715 Finite Temperature Field Theory 3 (3-0-6)

NWTP 801 Geometry and Topology in Physics 3 (3-0-6)

NWTP 811 Supersymmetry and Supergravity 3 (3-0-6)

NWTP 812 String Theory 3 (3-0-6)

NWTP 813 Statistical Field Theory 3 (3-0-6)

NWTP 814 Loop Quantum Gravity 3 (3-0-6)

NWTP 815 Advanced Quantum Field Theory 3 (3-0-6)

NWTP 816 Topological Gauge Theory and Geometrical Phases 3 (3-0-6)

NWTP 751 General Relativity 4 (4-0-8)

NWTP 761 Cosmology 3 (3-0-6)

NWTP 762 The Early Universe 3 (3-0-6)

NWTP 763 Observational Cosmology 3 (3-0-6)

NWTP 851 Advanced General Relativity 3 (3-0-6)

NWTP 852 Scalar-Tensor Theory of Gravitation 3 (3-0-6)

NWTP 853 Dark Energy and Modifications of Gravity 3 (3-0-6)

NWTP 854 Gauge Symmetries in Gravitation 3 (3-0-6)

NWTP 855 Physics of Black Holes 3 (3-0-6)

NWTP 856 Theoretical Foundations of Cosmology 3 (3-0-6)

NWTP 861 Cosmic Microwave Background Radiation 3 (3-0-6)

NWTP 862 Quantum Cosmology 3 (3-0-6)

1. **Certificate of Advanced Studies in Complexities**

NWTP 521 Equilibrium Thermodynamics and Phase Transitions 2 (2-0-4)

NWTP 522 Equilibrium Statistical Mechanics and Kinetic Theory 2 (2-0-4)

NWTP 531 Fluid Dynamics 2 (2-0-4)

NWTP 532 Vibrations and Waves 2 (2-0-4)

NWTP 631 Signals and Systems 2 (2-0-4)

NWTP 641 Complex and Adaptive Systems 2 (2-0-4)

NWTP 681 Statistics for Physic**s** 2(2-0-4)

**(not more than two of these seven courses can contribute to the requirement)**

NWTP 721 Non-equilibrium Thermodynamics 3 (3-0-6)

NWTP 722 Advanced Statistical Mechanics 3 (3-0-6)

NWTP 723 Non-Equilibrium Statistical Mechanics 3 (3-0-6)

NWTP 731 Turbulence 3 (3-0-6)

NWTP 732 Fluctuations in Physical Systems 3 (3-0-6)

NWTP 733 Synchronization 3 (3-0-6)

NWTP 734 Condensed Matter Physics 3 (3-0-6)

NWTP 735 Granular Physics 3 (3-0-6)

NWTP 741 Non-linear Dynamics 2 (2-0-4)

NWTP 742 Complex Network 3 (3-0-6)

NWTP 743 Scaling 3 (3-0-6)

NWTP 744 Self-Organization and Pattern Formation 3 (3-0-6)

NWTP 771 Physics of Economy and Financial System 3 (3-0-6)

NWTP 772 Physics of Social System 3 (3-0-6)

NWTP 773 Physics of Ecological System 4 (4-0-8)

NWTP 774 Physics of Traffics 3 (3-0-6)

NWTP 781 Probability, Entropy, Information and Communication 3 (3-0-6)

NWTP 782 Bayesian Data Analysis 3 (3-0-6)

NWTP 783 Time Series Analysis 3 (3-0-6)

NWTP 784 Random Matrix Theory 3 (3-0-6)

NWTP 785 Stochastic Calculus for Physics 3 (3-0-6)

NWTP 786 Applied Game Theory and Evolutionary Dynamics 3 (3-0-6)

NWTP 821 Theory of Critical Phenomena 3 (3-0-6)

NWTP 822 Phase Transitions in Classical Field Theory 3 (3-0-6)

NWTP 841 Synergetics I 3 (3-0-6)

NWTP 842 Synergetics II 3 (3-0-6)

NWTP 843 Catastrophe Theory 3 (3-0-6)

NWTP 844 Random Walk and Renormalizations 3 (3-0-6)

Signature of the Applicant: Date: DD/MM/YYYY