# DEPARTMENT OF MATHEMATICS
## JADAVPUR UNIVERSITY

## MODULES for Ph.D.(Sc) COURSE WORK in MATHEMATICS.

| Courses | Subject | Full Marks |
|---|---|---|
| Compulsory Units | A. Research Methodology | 50 |
| | B. Review of Research Work | 50 |
| Elective Units | 1. Difference Equation and its Application | 25 |
| | 2. Introduction to Control Theory and its Application-I | 25 |
| | 3. Introduction to Control Theory and its Application-II | 25 |
| | 4. Introduction to Control Theory and its Application-III | 25 |
| | 5. Computational Techniques using Mathematica and Matlab | 25 |
| | 6. Numerical Simulation and Plasma system | 25 |
| | 7. Inventory Control | 25 |
| | 8. Ricci Flow | 25 |
| | 9. Some Structures on Differentiable manifold | 25 |
| | 10. Spectrum and Numerical range | 25 |
| | 11. C* - Algebra   _Course No. 12._ | 25 |
| | 12. Topological Groups   (14) | 25 |
| | 13. Sequence Spaces   (15) | 25 |
| | 14. Integral Equations   (16) | 25 |
| | 15. Theory of Distribution   (17) | 25 |
| | 16. Introduction to the Theory of Water Waves   (18) | 25 |
| | 17. Modules, Rings, Groups and Categories   (19) | 25 |
| | 18. Lattice Theory   (20) | 25 |
| | 19. Categories and Universal Algebra   (21) | 25 |
| | 20. Theory of Semi groups   (22) | 25 |
| | 21. Theory of Semirings   (23) | 25 |
| | 22. Cosmology   (24) | 25 |
| | 23. Lagrangian and Hamiltonian formulations relativity of general relativity. (25) | 25 |
| | 24. Rotating Black Holes (26) | 25 |
| | 25. Geodesic Congruences (27) | 25 |

**N.B.:** Students to opt 100 marks out of the elective units offered.
16 lectures to be attended for each 25 marks.

Head
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18/05/16