

2nd Year (2020)

PHY 207 1.0 / 257 1.0

Special Theory of Relativity

Course Contents :

- * Introduction to Philosophical Background of Science * Discovery of the speed of Sound * Discovery of the speed of Light * The Concept of the 'Ether' * Michelson – Morley Experiment
- * Einstein's Postulates * Measurement of 'Time' and its experimental background * Proper Time * Measurement of 'Length' and its experimental background * Time Dilation and Length Contraction * Doppler's Effect in Relativity
- * The Energy Equivalence * Relativistic 'Energy' * Relativistic 'Momentum' * Einstein's Relativistic Energy Equation * Relativistic 'Mass' * Experimental background of the Relativistic Mass * The Twin-Paradox
- * Transformation Equations * Galilean Transformation Equations * Lorentz Transformation Equations (Time Dilation and Length Contraction) * Lorentz Inverse Transformations Equations * Lorentz Invariants
- * Four Vector Spaces * Causality, Experimental evidence * Causality in Eastern and Western Philosophy
- * Brief Introduction to General Relativity

References :

1. *Newton to Einstein – Ralph Baierlein.*
2. *On the shoulders of the Giants – Stephen Hawkins.*
3. *The Brief Introduction of Time – Stephen Hawkins.*
4. *Relativity for the Layman – James A. Coleman.*
5. *Understanding special theory of Relativity – Y. R. Waghmare.*
6. *Testing the Theory of Relativity – Brian Jones & Gerald Laban.*
7. *Elements of Special Relativity – S. P. Singh & M. R. Badge.*
8. *What the Buddha Thought – Rev. Walpola Rahula.*
9. *Special Relativity – A. P. Fench.*
10. *Special theory of Relativity – B. L. Warsnop.*
11. *Special theory of Relativity – David Bohm.*
12. *An Introduction to the special theory of Relativity – Robert Kats.*
13. *Introduction to the special theory of Relativity – James Smith.*
14. *අභිධර්ම මාර්ගය - මහාවාරිය පූජ්‍ය රේරුකානේ චන්ද්‍රවිමල.*
15. *අභිධර්මයේ මූලික කරුණු - මහාවාරිය පූජ්‍ය රේරුකානේ චන්ද්‍රවිමල.*
16. *අභිධර්ම සමුච්චය - පූජ්‍ය හේන්ජිට්ඨෙර දොණර්චිත.*
17. *සූත්‍ර ජිටකය (දීප නිකාය, මජ්ඣිම නිකාය, සංයුක්ත නිකාය, අංගුත්තර නිකාය හා බුද්දක නිකාය)*
18. *සාප්තමහාවාදය, සරල ඛණිත... - ප්‍රසන්න මධුරංග ප්‍රනාන්දු [Sarasavi Publishing]*

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