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| Logo_MEC  **LECTURE HANDOUTS**  **I / II**  **PHYSICS** | **MUTHAYAMMAL ENGINEERING COLLEGE**  **(An Autonomous Institution)**  **(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)**  **Rasipuram - 637 408, Namakkal Dist., Tamil Nadu** | **L 01** |

**Course Name with Code :BIO AND NANO MATERIALS SCIENCE/19BSS03**

**CourseFaculty :Dr.S.J.Azhagushanmugam**

**Unit : I- Introduction to Materials Date of Lecture:**

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| **Topic of Lecture :** Postulates of Rutherford atom model |
| **Introduction :**   * Rutherford performed a number of experiments on the scarierity of a particles passed through the gold foil. * It was found that more of a particle passed through the gold foil without being deflected, but source of them were deflected through large angle. |
| **Prerequisite knowledge for Complete understanding and learning of Topic:**   * Electron revolve in orbit * Force of attraction between electron and nucleus * Central petal force and centre fugal force |
| **Detailed content of the Lecture:**  **Postulates of Rutherford atom model**   * The atom has a small, positively charged nucleus. All positive charges of on atom and most of the mass of an atom are concentrated in the nucleus. * The electrons round the nucleus at some distance away just planer round. The electron resolving in a closed orbit of radius ‘r’ with constant valuation ‘v’. The system in subjected to two different forces. * The centrifugal force area is balances by the force of electrostatic as reaction between the nucleus and electrons. * The electrostatic force acting inwards in give by Coulomb’s Law: * 𝑓e =   Here is permittivity of force space   * The other force acting outwards called centrifugal force as given as : * 𝑓c =   Where m is the mass of an electron. r2/r is radical acceleration. Hence the  Condition foe orbit Stability is 𝑓e = 𝑓c.   |  |  | | --- | --- | | = |  | |
| **Video Content / Details of website for further learning (if any):**  <https://www.toppr.com/guides/chemistry/structure-of-atom/rutherfords-model-of-an-atom/><https://study.com/academy/lesson/rutherford-model-of-the-atom-definition-diagram-quiz.html> |
| **Important Books/Journals for further learning including the page nos.:**  Solid state physics by S.O.Pillai Page No. 3 |

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**Verified by HOD**