

14P1WPH212 Science and Technology of Nanocomposites

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| Subject Code | 14P1WPH212 | | |
| Subject Name | Science and Technology of Nanocomposites | | |
| Credits | 3 | Contact Hours | 3 |
| Module No. | Subtitle of the Module | Topics | |
| 1. | Ceramic/Metal Nanocomposite Systems | Preparation technologies: mechanical alloying, sol-gel synthesis, melt spraying. Structures: particles, thin films, wires, porous systems. Applications: electrical, magnetic and optical.. | |
| 2. | Nanocomposites based on polymer matrix: | polymer / polymer, ceramic / polymer, metal / polymer, carbon nanotube / polymer. Preparation technologies: solid mixture, solutions mixing, in-situ polymerization, polymer coatings, other coatings. Applications: mechanical, electrical, optical | |
| 3. | Natural nanocomposites | Nanocomposites synthesized biologically; Nanocomposites synthesized by mimicking natural processes; Packaging proteins | |

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| Recommended Reading (Books/Journals/Reports/Websites etc.: Author(s), Title, Edition, Publisher, Year of Publication etc. in IEEE format) | |
| 1. | Nanocomposite Science and Technology, by P. M. Ajayan |
| 2. | Metallopolymer Nanocomposites, by A.D. Pomogailo and V.N. Kestelman. |