Value Added Course 3

Title: Plasma Physics and Technology

Unit:1 15 hours

Plasma – Fourth state of matter – Natural and laboratory plasmas – Types of plasmas –Thermal plasma – Generation of thermal plasma: High intensity arcs – Thermal RF discharges – Microwave discharges – Properties – Thermal Plasma Technology: Plasma deposition – Thermal plasma synthesis of fine powders – Plasma metallurgy – Plasma welding and cutting

Unit:2 15 hours

Generation of non-thermal plasma – Plasma diagnostics: plasma parameters – Low pressure cold plasma technology – other plasma processing technologies – Surface modifications of fabrics – Textile applications.

Total Lecture hours **30 hours**

Text Book(s)

1 . Thermal Plasmas Fundamentals and applications, Vol.1, Maher I. Boulos, Pierre Fauchais And Emil Pfender, (1994), published by Plenum Press, New York.
2 . Applications in Composites, Nanostructured Materials and Biomedical Fields, edited by Sabu Thomas, MiranMozetic, Uros Cvelbar, Petr Spatenka and K.M. Praveen, (2019), 1st Edition, Science Direct Book.

Reference Books

1 The Fourth State of Matter: An Introduction to Plasma Science, 2nd Edition, S. Eliezer and Y. Eliezer, (2001), published by Institute of Physics (IOP) Publishing, London.
2 Basic Plasma Physics, Basudev Ghosh (2014), published by Narosa Publishing House, India

Scheme of Assessment

1. First Internal Assessment tests (for C1) will be conducted after 8th week of the semester comprising 50% of the syllabus.

2. Second Internal Assessment tests (for C2) will be conducted in the 16th week of the semester comprising remaining 50% of the syllabus.

3. The C1 and C2 Internal Assessment tests evaluation will be an aggregate of written test, assignments, seminar by the corresponding Course teacher/teachers.

4. A student will be eligible for C3 final examination, if he/she has scored a minimum of 30% which is the sum total of C1test and C2 test.

6. C3 final examination will be conducted in 18th week of the Semester. .

The pattern of evaluation is provided below

Examination	Unit 1	Unit 2	Average score	Assignment	Seminar	Total Marks
C1	5	5	5	5	--	10
C2	5	5	5	--	5	10
C3	15	15				30