

FRP Institute set to Launch a part time Certificate Course on Composites in collaboration with Institute of Chemical Technology (ICT) Mumbai.

In order to realize its goal to create growth, refinement and advancement in the Indian composites industry, the FRP institute identified the need of such a programme on composites. In collaboration with Institute of Chemical Technology (ICT) Mumbai, The FRP Institute has designed a **one year part-time certificate course on composites**. The programme is likely to start in September 2011. FRP Institute has **donated Rs 20 Lakhs** to ICT, Mumbai for this education programme initiative and will be involved in setting up a fully equipped Composites lab at ICT, Mumbai with support from Indian Composites Industry. 35 candidates will be admitted to the certificate course and preference will be given to Industry sponsored candidates. Selection of candidates will be based on norms set out by ICT, Mumbai and FRP Institute. The course will be held at Department of Polymer and Surface Engineering (DPSE) of ICT, Mumbai on **FRIDAYS** and **SATURDAYS**. This weekend course schedule is designed to encourage the participation of more industry sponsored candidates in this educational programme. During the second half of the programme, Students will be asked to take up project work, either in their area of interest or in the interest of the sponsoring company. There will be a few intensive 3 to 4 day workshops where students may be required to take some time off from work.

FRP institute is welcome to suggestions for conducting this programme successfully. The institute intends to launch additional programmes in the future.

The basic educational qualification for this course will be a bachelors degree in Engineering or in Science. Fresh candidates can also apply and work experience on composites is NOT mandatory, however they must have keen **INTEREST** in Composites.

Candidates who wish to join the course may send a Curriculum vitae (2 pages maximum) and a one page write up on their interest in composites and intention to work in the composites industry to the following email ID: courses@frpinstitute.org.

More information on the diploma programme, including the course fee and timings of the class hours will be announced shortly.

Composites Experts who wish to give lectures in this certificate course are requested to send a brief note on their area of expertise in Composites.

Tentative Syllabus proposed by FRP Institute

Introduction to Composites

- Composites definition
- Composites constituents

Raw materials in Composites Industry

Resins

- Unsaturated Polyester
(*Raw materials, Production, Chemistry, Classifications or types*
Liquid resin Characteristics
Curing, Cured resin properties)
- Epoxy
- Vinyl ester
- Phenol formaldehyde
- Polyurethane
- Other resins

Fibres

- Glass fibres
(*Classifications, Characteristic features of each type*
Production, Sizing / coupling agents
Tex and other related terminologies
Physical and mechanical properties, Applications)

Carbon fibres
Aramid fibres
UHMWHDPE fibres
Basalt fibres
Ceramic fibres
 Silicon carbide, alumina
Natural fibres
 (Jute, Sisal, Coir, Pineapple
 and other fibres)

Carbon nanotubes

Additives and Speciality chemicals

Fillers

Core materials

Prepregs

Composites Manufacturing processes

Hand lay up, Filament winding, Vacuum infusion method, Pultrusion, SMC/BMC, RTM/LRTM/RRIM, Autoclave moulding, Compression moulding, Spray up
Thermoplastic composites processing

Theory of Composites materials

Designing of Composites products

Sandwich construction

Textile Composites

Natural fibre Composites

Nano composites

Mould making

Composites Applications in various sectors

(Wind energy, Infrastructure, Automotive, Electrical, Aerospace & Defence, Marine, etc)

Testing of Composites

Standards, (IS, ASTM)

Property evaluation

(Tensile, Flexural, Impact, Compression)

NDT of Composites

Quality control

Common problems and their solution

(With respect to raw materials and products manufactured through various processes)

Quality standards – ISO 9000

Handling, Storage and safety of Materials and working environment

Materials selection for specific applications

Lab / Practicals

Industry visits

Recycling of composites

Composites Market trend in India and world wide

Project work

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