1.3.2 Number of value-added courses for imparting transferable and life skills offered during last five

1.3.3 Average Percentage of students enrolled in the courses under 1.3.2 above (10)

Year -1						
Name of the value added courses (with 30 or more contact hours)offered	Course Code (if any)	Year of offeri	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
Theory of Pressure Vessel Design	MG-01	2014	1	35 hrs	49	17
Year 2						
Name of the value added courses (with 30 or more contact hours)offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
Essence of Materials Science	MG-02	2015	1	60 hrs	66	22
Year 3						
Name of the value added courses (with 30 or more contact hours)offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
Year 4						
Name of the value added courses (with 30 or more contact hours)offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year

13.08.2020

एस. के. सिंह Singh

वैज्ञानिक अधिकारी (एच) एवं वार्डन Scientific Officer (H) and W

मानव संसाधन विकास प्रभाग Human Resource Development D

भाभा परमाणु अनुसंधान केंद्र Bhabha Atomic Research Cen

भारत सरकार Government of India

प्रशिक्षण विद्यालय भवन, अणुशक्तिनगर मुंबई-400 094

Training School Complex, Anushak

Linear Control Systems Theory	EG-13	2017	1	48 hrs	16	6
Natural Circulation Based Passive Safety Systems for	MG-03	2017	1	48 hrs	12	6
Nuclear Fuels and Fuel Cycle	MG-04	2017	1	48 hrs	65	36
Year 5						
Name of the value added courses (with 30 or more contact hours)offered	**Course Code (if any)**	**Year of offering**	**No. of times offered during the same year**	**Duration of course**	**Number of students enrolled in the year**	**Number of Students completing the course in the year**
State - space approach to reactor control	EG-01	2018	1	48 hrs	13	6
Natural Circulation based passive safety system for advanced reactor	M-G03	2018	1	48 hrs	9	5
Advanced computational physics	PY705	2018	1	35 hrs	20	20

Singh 13.08.2020

एस. के. सिंह S. K. Singh
वैज्ञानिक अधिकारी (एच) एवं वार्डन Scientific Officer (H) and Warden
मानव संसाधन विकास प्रभाग Human Resource Development Division
भाभा परमाणु अनुसंधान केंद्र Bhabha Atomic Research Centre
भारत सरकार Government of India
प्रशिक्षण विद्यालय भवन, अणुशक्तिनगर, मुंबई-400 094
Training School Complex, Anushaktinagar, Mumbai-400 094

A Quest Course on 'Essence of Materials Science'

(40 Lectures of 1 ½ hour , 4 Credits)

By

Prof. Srikumar Banerjee*

Chancellor HBNI

Sr. No.	Details of Lectures	No. of Lectures
1.	**Bonding and Crystallography** Bonding: Ionic, Covalent, Metallic Symmetry, Crystal structures Diffraction with x-ray, electrons and neutrons	6
2.	**Thermodynamics** First, Second & Third Laws Reaction Equilibria, Principles of Metal Extraction Thermodynamics of Solutions	6
3.	**Microstructure at different length scales** Imaging principles Crystal defects: Point, Line, Surface & Volume Defects Scanning and Transmission Electron Microscopy Spectroscopic Techniques for Microchemical Characterization	6
4.	**Phase Transformations** Diffusion, Classification of Phase Transformation Diffusional Processes, Radiation Damage Displacive Transformations, Heat Treatments	6
5.	**Physical Properties** Electronic structure,Band structures, Density of states Magnetism, Superconductivity Electronic basis of phase stability	6
6.	**Mechanical properties and In Service Degradation** Elastic and Plastic Deformation, Dislocations Creep, Fatigue and Wear, Corrosion	6
7.	**Material Processing** Solidification, Laser, Plasma, Electron beam processing Vapour phase processing, Solution processing Mechanical processing, Electro processing	4

*Tutorials will be conducted by Dr. Arjit Laik, BARC