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

Singh 13.08.2020

एस. के. सिंह Singh
वैज्ञानिक अधिकारी (एच) एवं वार्डन Scientific Officer (H) and W
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Training School Complex, Anushak

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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

13.08.2020

एस. के. सिंह S. K. Singh
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About the Course

HRD Division invites applications from employees of DAE units located in Trombay, TSOs of OCES physics discipline, and from HBNI students for the following Advanced Course-

Course Title: Advanced Computational Physics (An elective course for OCES-Physics)
Code: PY705

The course will comprise about 20 lectures. There will be 4 - 5 lectures per week for the course. The exact timetable, venue and schedule of course to be offered will be notified later based on the nominations received for the same.

- The above advanced course is offered to the DAE employees subject to approval from competent authority (Head of Division or equivalent within BARC & other DAE units at Trombay). Students pursuing M.Tech/ M.Sc. (Engg)/ Ph.D. programmes of HBNI may forward the applications through their respective guides. Physics TSOs may submit their applications directly to the undersigned.

- It is mandatory that the interested employees/ HBNI students enrolled for the Course have a minimum of 80% attendance in the classes to be eligible to appear in the final written examination/project work. Kindly note that certificates will be issued only to those who appear in the written examination and score an aggregate of 50% or more in home/classroom assignments & written examinations/project work taken together.

Interested eligible TSOs, employees and HBNI students meeting the specified eligibility criteria, wherever applicable, may forward their applications/ nominations through their Division Head or equivalent competent authority as the case may be, to

Shri S.K. Singh,
HRDD

latest by **25th September, 2017** to ensure programme implementation as envisaged above.

Kindly note that a course will be offered subject to the receipt of a minimum number of applications in the same and decision of the coordinator/ Faculty concerned will be final in this regard.

Summary of the Proposed Course on

Advanced Computational Physics: an elective course for OCES physics

Course Code	Course Title	Eligibility	Faculty
PY705	Advanced Computational Physics	TSOs of current batch (physics)/ Students(DAE employees located at Trombay) pursuing M.Tech/ M.Sc. (Engg)/ Ph.D. programmes of HBNI/ Engineering graduates/ Science Postgraduates	Dr. Kondayya Gundra Theoretical Physics Section BARC

Syllabus of the Course:

Scientific Programming: Introduction to Computer Programming, Familiarization with Unix and WINDOWS, Computer-arithmetic, High Level Languages FORTRAN & C, Statements and Implementation on PCs, Sample assignments to write programmes for scientific computation.

Numerical Methods: Solution of non-linear system of equations, Curve fitting of given data, numerical integration, Solution of linear systems and Eigen value problems, Solution of ordinary and partial differential equations, Monte Carlo Methods,

Physics Problems and Solutions Based on Scientific Programming: Scattering by a central potential, Partial wave solution of quantum scattering, A Schematic Shell Model, the Dynamics of many particle systems (molecular dynamics, deterministic method) , optimization methods, Neutron transmission through shield (Mont Carlo Method), Multi-dimensional Monte Carlo Integration, Importance Sampling, Random Walk Methods, the Approach to Equilibrium (Monte Carlo Method), Microcanonical ensemble, Canonical ensemble, and Metropolis algorithm.