

Bose.X TRIAC Modules 2024 - 2025

Center for Astrophysical Research (XCAR)

Modules	Mentor	Duration (week)	Topics covered	Code	Fees (INR) students**	Fees (INR) professional*	Eligibility	Course Start Date
Gravitational wave detection	Shashwat S.	10 – 12 (2 hours/week)	Introduction to GR	XCARGWD	14,970 2,200	14,970 10,479	Available only to students who have completed basic GR or have opted for XCARPROJS/L.	April first week
			Introduction to GW					
			Detection principle					
			Noise Sources in GW detector					
			Laser Interferometer Space Antenna (LISA)					
Gravitational wave sources	Shashwat S. + Sreekanth H.	10 – 12 (2 hours/week)	GWs from CBCs	XCARGWS	14,990 2,230	14,990 10493	Available only to students who have knowledge equivalent to course XCARGWD or have opted for XCARPROJS/L.	April first week
			Continuous GWs					
			Multi-messenger astronomy					
			EMRIs & MBHs					
Gravitational wave data analysis	Shashwat S.	12 – 15 (2 hours/week)	GW data analysis – I (theory)	XCARGWA	21,970 2,400	21,970 15,379	Available to students who have knowledge equivalent to course XCARDA or have opted for XCARPROJS/L.	April first week
			GW data analysis – II (hands-on)					
			What can we infer from GWs ?					
Data Analysis	Shashwat S.	12 – 15 (2 hours/week)	Brief on Probability	XCARDA	11,790 2,070	11,790 8,379	No prerequisite. Open for all students.	April first week
			Introduction to Basic Distributions					
			Parameter Estimation					
			Bayes Theorem, Marginalisation & Analysis					
			Monte Carlo Methods					
			Fourier Transform					
			GW Data Analysis (example)					
Basics of Linux + Version Control (Git)	Shashwat S.	1-2 (1 hours/week)	Basics of Unix Shell	XCARBL	10,370 1,990	10,370 7,259	No prerequisite. Open for all students.	April first week
			Version Control (Github)					

If opted in for multiple courses, discounts apply as follows : 2 courses 5%, 3 courses 8%, 5+ courses 10%.
 Certification is available after a successful final presentation + MCQ test. See website for details. Fill in the [form](#).
Note : Eligibility should still hold for all courses opted in.

** Student: An individual whose highest degree is currently below a Master's level or who is expected to obtain a Master's degree (or its equivalent) by the end of the academic year.

* Professional: An individual whose highest degree exceeds a Master's level or who does not meet the criteria for classification as a Student.

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X Center for Astrophysical Research (XCAR)

Membership	Mentor	Duration (months)	Code	Fees (INR) students**	Fees (INR) professional*
Short Term Project	TBD	3-5	XCARPROJS	9,790	15,970
Long Term Project	TBD	6-9	XCARPROJL	12,990	21,970
General Membership	NA	2	NA	297	297
		6		870	870
		12		1179	1179

Note : Fee for XCARPROJS & XCARPROJL is inclusive of all the courses (maximum 3) assigned by the mentor. Additional courses carry a standard fee.

Bose.X Training for Research

Modules	Mentor	Duration (weeks)	Topics covered	Code	Fees (INR) students**	Fees (INR) professional*	Eligibility	Course Start Date
Introduction to research	Ankul P. & Shashwat S.	14-16 (1 hour/week)	Introduction to Research	XTR	2,670	10,970	No prerequisite. Open for all students.	March second week
			Identify Research Area of Interest					
			Formulating a Research Problem					
			Research Methodologies & Planning					
			Basics of Data Analysis & Interpretation					
			Reading and Writing Articles					
			Presenting Research in a Conference					
			Research Career & Applications and many more!!					

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