

The logo for Shiv Nadar University, featuring the name in a blue serif font with a horizontal line above it.

Water Science and Policy Program

Apply Now for Certificate Program in Module Two

Shiv Nadar University (SNU) is excited and proud to announce the launch of a 2-year multi-disciplinary post-graduate (M.Sc.) program on Water Science and Policy on August 1, 2017. After a successful launch of certificate program for module one, the applications are now invited for module two.

The landmark program aims to be a first-of-its-kind academic program that captures the multi-disciplinary nature of water, delivered by some of the best minds globally – experts on water who have worked on ground realities, made policies and initiated change.

The main aim of this program is to create a critical mass of water professionals with a historically and socially contextualised, multi-disciplinary perspective and understanding of water, who can help carry forward India's on-going paradigm shift in water management.

This is why the program has been built on a modular structure, flexible enough to allow stakeholders from the government, civil society, industry and others to opt for selective courses from within the program, leading to the award of certificates and diplomas. There are array of options available in terms of both topics and duration – truly an opportunity for a diverse range of stakeholders in the water sector.

After a recent high-level review, Shri Amitabh Kant, CEO, NITI Aayog remarked that Shiv Nadar University “will create history through this program”. Dr. Amarjit Singh, Secretary, Water Resources, Government of India felt that this unique program, which combines fundamental theoretical and field level practical learning, is a timely and necessary knowledge engagement to build a cadre of water professionals who will be

able to guide development of sustainable and just 21st century policies, programs and solutions to India's growing water crisis. Shri Parameswaran Iyer, Secretary, Drinking Water and Sanitation, Government of India described this as a 'world-class program'.

Modular Nature of the Program

Divided into 4 modules (8 courses), **Semester One** equipped students with a clear understanding and the relevant depths on the basic concepts of water: a multi-disciplinary introduction to the water cycle organised around rivers, aquifers, watersheds, lakes & wetlands, ecosystem services and the historical, social, legal and institutional aspects of water. **Semester Two** will introduce you to problems and applications of water. It will take you through a critical assessment of programs and policies on water in India since Independence, covering large dams, groundwater extraction, watershed development, flood management, drinking water and sanitation, urban and industrial water, legal & institutional aspects of water in India, water conflicts, climate change and SDGs.

Shiv Nadar University will award a *Certificate* in Water Science and Policy. You can choose any one of the 4 modules listed below. You can also opt for other courses in a staggered manner in subsequent years to upgrade your degree to Diploma, PG Diploma and M.Sc.

Module	Course	Faculty	Highlights of the Module	What it will Enable
1	1. Water Cycle	Dr. John Williams, ANU Crawford School of Public Policy, Canberra Dr. Moumita Karmakar Dr. Girish Agrawal, SNU	<ul style="list-style-type: none"> • Introduces the water cycle as an important component of the earth system • Provides an understanding of the many processes that make up the Water Cycle and an opportunity to learn the methods and measurements for quantifying its different components • Understand trade-offs critical to design a sustainable water management strategy for any developing country 	Nearly everyone seems to know of the water cycle but do we really understand the implications of the interconnections and processes within the cycle? When in government we formulate programs and policies, when civil society

		Dr. Shailesh Behra, SNU		practitioners implement their projects? MSc students will refresh their understanding; fill the gaps in their knowledge; and address practical problems from a deeper understanding.
	2. River Systems	Dr. Rajiv Sinha, IIT Kanpur Dr. Brij Gopal, JNU Dr. John Williams, ANU Crawford School of Public Policy, Canberra Dr. S.K. Tandon, IIT Kanpur	<ul style="list-style-type: none"> • Introduction to the science of rivers • Nuances of geomorphic processes in river systems and their relationship with river ecology • Develop awareness of sustainable management of rivers through process-based understanding 	Today we have resolved to make river rejuvenation a key national mandate. This course will enable an understanding of the implications of each intervention we make on rivers, whether building dams, embankments, waterways etc. We will also understand what is making India's rivers dry up in such large numbers and the integral connection between river flows and the health of their catchment areas.
2	3. Watersheds	Dr. Mihir Shah, SNU Mr. PS Vijayshankar, Samaj Pragati Sahayog Mr. Apoorva Oza, Aga Khan Rural Support Program	<ul style="list-style-type: none"> • What is Watershed Management: Goals and Principles • Global Origins and History of Watershed Concept • Participatory planning and social contexts of watersheds • Watershed Management: Key Interventions • Understanding Maps and their multiple uses • Determinants of the Volume and Velocity of Surface Runoff • Integrating Hydrogeology and Groundwater into watershed management 	Watershed management has been a buzzword for some time. But do we really understand what this entails in all its dimensions? This course is critical both for those who are not familiar with watersheds but also for those who have been implementing

			<ul style="list-style-type: none"> • Controversies in Watershed Management: Debates and Discussions • Watershed Development as Landscape Management – An Ecosystem View of Management of Water, Forests and Commons 	watershed programs within or outside government. The course will bring you up-to-date with the latest understanding of the strengths and weaknesses of the watershed approach and enable you to develop an appreciation of its many relatively neglected dimensions.
	4. Aquifers	Dr. Himanshu Kulkarni, ACWADAM, Pune Dr. Rajiv Sinha, IIT Kanpur Dr. Tushaar Shah, International Water Management Institute Dr. Aditi Mukherji, ICIMOD, Nepal	<ul style="list-style-type: none"> • Understanding the concept of aquifers, their global situation and significance in India's unique groundwater story • Common pool nature of aquifers, their properties and their relevance to social, economic and environmental aspects of aquifers • Understanding aquifers in terms of their capacity to store and transmit water • Interrelationship of groundwater with surface water and soil-water • Mapping and management of aquifers 	Groundwater is India's single most important water resource but do we really understand the diverse nature of India's aquifers and the implications of this diversity for the way we exploit our groundwater? And the impact our actions could have on river flows, water quality, water stored in our dams, water for life and livelihood security?
3	5. Lakes and Wetlands	Dr. Rajiv Sinha, IIT Kanpur Dr. Bhishm Kumar, Formerly at NIH Roorkee and IAEA Vienna Dr. Brij Gopal, JNU	<ul style="list-style-type: none"> • Terrestrial water cycle – lakes and wetlands – and their environmental and ecological significance • Understanding the hydrological processes operating in lakes and wetlands with a view to design sustainable strategies for their management 	Urban flooding has become a recurrent phenomenon. But do we realise how much this is linked to destruction of our lakes and wetlands? What are all the reasons these water bodies need protection and the

				multiple roles they play in providing us water security? All of these neglected dimensions of water management will be taught in this course.
	6. Water and Ecosystem Services	<p>Dr. Rajeswari Raina, SNU</p> <p>Dr. Kanchan Chopra, former Director, IEG</p> <p>Dr. Purnamita Dasgupta, IEG</p> <p>Dr. N.C. Narayanan, IIT Bombay</p>	<ul style="list-style-type: none"> • Develop an understanding on how water and its services are valued by the multiple purposes, conceptual tools, decision-makers and users, non-user living systems, and non-user life givers • Are the economic and more crucially, monetary values good enough for all? • Different valuations and estimates of ecosystem services: what do they mean for daily economic uses, in production systems, embedded in other services, as well as in climate resilience and complex adaptive systems 	Ecosystems services is a relatively less understood and appreciated concept across the board. This course will enable water students, practitioners and policy-makers the need to embed this perspective in whatever work they do related to water. They will understand not just its emergence but also its evolution from a metaphor to an agenda-setting concept and now a framework for policy decisions.

4	7&8. Historical, Social, Institutional and Legal Dimensions of Water I & II	<p>Dr. Deepa Joshi, Centre for Water, Agroecology and Resilience, Coventry, UK</p> <p>Dr. Margreet Zwarteveen, UNESCO-IHE, Delft, Netherlands</p> <p>Dr. Philippe Cullet, Law, Environment and Development Centre, University of London</p> <p>Dr. Subodh Wagle, IIT, Bombay</p> <p>Dr. Sudeshna Guha, SNU</p> <p>Dr. Rajeswari Raina, SNU</p> <p>Dr. Mekhala Krishnamurthy, SNU</p> <p>Dr. Kaveri Gill, SNU</p>	<ul style="list-style-type: none"> • Water and the Ancient World - explores some of the connected histories of water and early civilisations • Knowing Water: Disciplines, Actors and Systems – explores the nature and organization of water knowledge, and the need to demystify science of and expertise in water, and develop skills to explore the relationships between different forms of water knowledge • Gender, Intersectionality and Water- critically unravels the meaning of ‘gender’ in relation to water and understand how it is never “pure” and never “absent” • Masculinities in Water – critically looks at ways to research and question the ‘genderedness’ of science; • Water: Anthropological Perspectives – It unravels the anthropological world of water through various fundamental questions • Political Economy of Urban Water and Waste - brings forth a complex and nuanced understanding of water and waste in the city, as a problem for some and as a possibility for others • Legal Architecture of Water Governance - examines the myriad nuances of water from legal perspective – laws, policies, regulations • Water Regulation - explores the world of regulation in water. Critique of the structure and functioning of water regulators and an alternative structure of a water regulatory authority 	<p>Do we realise that history is critical for a real understanding of water? Do we know what roles gender and caste have played in shaping access to water? What are the different ways of knowing water? Are we even aware that there is an entire body of work on the anthropology of water? What are all the dimensions involved in the governance of water? How are water laws important? All this and much more will become available through this unique module.</p>
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Program Fees for 4-Week Certificate Program in Water Science and Policy

There are four Module options in Semester One. Each Certificate Program will consist of one Module, which includes two Courses. You may choose any of the one of the following modules.

Module	Course Title	Period
1	Water Cycle + River Systems	1/8/17 to 1/9/17
2	Watersheds + Aquifers	4/9/17 to 5/10/17
3	Lakes & Wetlands + Ecosystem Services of Water	6/10/17 to 10/11/17
4	Historical, Social, Institutional and Legal Dimensions of Water I + II	13/11/17 to 15/12 /17

1. Each Certificate program will run for 4 weeks.
2. Fees for each Certificate program will be ₹ 35,000 + 18 % GST (if applicable) for Academic Year 2017-18. The fees includes tuition and hostel accommodation on twin sharing basis.
3. Food and Laundry charges will be paid separately, on actual basis. (generally comes to around ₹ 5000)
4. There is also a facility for accommodation in air-conditioned rooms in the University Guest House, which is available on First-Cum-First-Served basis upon additional payment for the same.

LAST DATE FOR APPLICATION FOR MODULE TWO - AUGUST 23, 2017

For any query on admissions, please contact:

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