4. Quality Indicator Framework (QIF)

Criterion I - Curricular Aspects (150)

Key Indicator - 1.1 Curriculum Design and Development (50)

Metric Number: 1.1.1 QlM (20): Curricula developed /adopted have relevance to the local/ national / regional/global developmental needs with learning objectives including Programme outcomes, Programme specific outcomes and course outcomes of all the Programme offered by the University

Response: Water is becoming scarce and it is no longer a natural resource in abundance. However, it is an economic good with high social significance. Currently, 7 ministries in Government of India have water as the main theme of their mission. These ministries are: Jal Shakti, MoEFCC, MoUD, MoRD, MoES and MoST.

Most of the programmes offered by the educational institutions in India are highly skewed towards technology and engineering aspects, while very few institutions are focusing on economic and social aspects of water (Figure 1). None of the institutions is currently offering a programme on water resources, which are truly inter-disciplinary addressing contemporary issues.

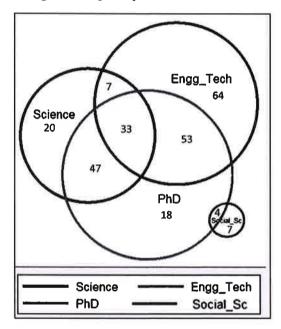


Figure 1 Current status of multidisciplinary water programmes in India

Metric Number: 1.1.2 QnM (20): Percentage of Programmes where syllabus revision was carried out during the last five years

Response: Both programmes were started in year 2014. After receiving feedbacks from students and employers, major revisions (nearly 40%) in the syllabus were done in the year 2016 and subsequently some minor revisions (nearly 10%) have been carried out in the year 2019.

Metric Number: 1.1.3 QnM (10): Average percentage of courses having focus on employability/entrepreneurship/skill development during the last five years

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1.1.3.1: Number of courses having focus on employability/ entrepreneurship/ skill development year wise during the last five years

Response: over 80% (Attached)

Key Indicator - 1.2 Academic Flexibility (50)

Metric Number: 1.2.1 QnM (30): Percentage of new courses introduced of the total number of courses across all Programmes offered during the last five years

Response: The entire programme is introduced in the last five years. The new courses have been introduced in the year 2016 and 2017. (Minutes of Academic Council and table of new courses attached)

Kev Indicator - 1.3 Curriculum Enrichment

Metric Number: 1.3.1 QlM (10): Institution integrates cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

Response: The entire curriculum is centered on environment and sustainability. Specific courses related to other topics mentioned in the question are as follows:

Course code	Course Title	Credits (L-T-P)
WSW 181	Water resources planning and management	3(42-0-0)
WSW 163	Gender, rights and equity perspective for sustainable water management	3(22-20-0)
WSW 143	Water resources - Institutions and governance	3(24-18-0)
WSW 182	Water security and conflict management	2(19-9-0)
WSW 153	Water law	3(34-8-0)

Metric Number: 1.3.2 QnM (10): Number of value-added courses imparting transferable and life skills offered during the last five years

Course code	Title	Credits (L-T-P)
WSW 167	Applied hydrology and meteorology	3(29-13-0)
WSW 173	Stochastic modelling	4(42-14-0)
NRE 111	Environmental statistics	3(28-14-0)
WSW 133	Advanced hydraulics	3(28-14-0)
WSW 146	Economics and financial evaluation of water infrastructure	4(42-14-0)
WSW 136	Irrigation water and drainage management	4(49-0-14)
WSW 176	Water quality modeling and applications	4(42-0-28)
WSW 173	Optimization techniques for water management	4(42-14-0)
WSW 175	Applied geoinformatics for water resources	3(28-6-16)
WSW 186	Design of water supply and sanitation system	4(43-13-0)
WSW 164	Integrated watershed and river basin management	3(32-10-0)
WSW 124	Water audit and demand management	3(32-10-0)
WSW 154	Aquatic eco-system management	3(22-6-28)

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Metric Number: 1.3.3 QnM (5): Average Percentage of students enrolled in the courses under 1.3.2 above

1.3.3.1: Number of students enrolled in value-added courses imparting transferable and life skills offered year wise during the last five years

Year	2014	2015	2016	2017	2018
No. admitted	19	8	18	7	14
No. enrolled in courses	19	8	18	7	14

Response: 100%

Metric Number: 1.3.4 QnM (5): Percentage of students undertaking field projects / internships (current year data)

Response: 100% (Proof Attached)

Key Indicator - 1.4 Feedback System (20)

Metric Number: 1.4.1 QnM (10): Structured feedback received from 1) Students, 2) Teachers, 3) Employers, 4) Alumni 5) Parents, for design and review of syllabus - Semester wise /year wise

Options:

A. Any 4 of the above

B. Any 3 of the above

C. Any 2 of the above

D. Any 1 of the above

E. None of the above



Response: A. Any four of the above (Records of the feedback is maintained in department file. Feedback from parents are not being sought.)

Students Feedback:

The feedback collected from the students highlight the need for revisions in some of the currently offered courses. Students mentioned that there was no proper link between the introductory and advanced courses in Geoinformatics. They also mentioned about the overlap in course contents. Regarding the course on Social Research Methods, they pointed out that that it could be offered alongside Technical Writing course. The course on Water Resources Economics was suggested to have the basics of economics and more relevant contents of financial evaluation. The students also pointed out that the workload during Semesters 1 & 2 could be redistributed.

Teachers' feedback

Teachers' feedback is taken, and the proposed changes are incorporated in the course content. These changes are presented to the board of studies and approved by the academic council. (Board of Studies Minutes attached)

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Employers feedback

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The feedback from the employers are taken at the end of the project placement and after a year of final placement to evaluate whether the courses offered, and the pedagogy taken by the department are aligned to the employers' requirement. The inputs provided are analyzed and if needed, the revisions are presented to the board for approval.

Alumni feedback

The Alumni suggested that shifting of Water Law Course to third semester and offering of Industrial Pollution Control as an elective in third semester instead of second semester so that students can grasp the nuances of the course better as they may use tools and techniques learnt in first and second semester. They also proposed that the field trip of second semester should carry credits, so that whatever students learn practically during field trips are presented and evaluated. The changes have been included in the programme.

Parents feedback

Parents feedback was discussed in the Academic Audit meeting held on 27 June 2019. The members suggested that parents feedback are not relevant for post graduate students who are mature to take decisions for themselves.

Metric Number: 1.4.2 QnM (10): Feedback processes of the institution may be classified as follows:

- A. Feedback collected, analysed and action taken and feedback available on website
- B. Feedback collected, analysed and action has been taken
- C. Feedback collected and analysed
- D. Feedback collected
- E. Feedback not collected

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Response: B. Feedback collected, analyzed and action has been taken

<u>Criterion II - Teaching-Learning and Evaluation (200)</u>

Key Indicator - 2.2 Catering to Student Diversity (20)

Metric Number: 2.2.1 QlM (5): The institution assesses the learning levels of the students, after admission and organises special Programmes for advanced learners and slow learners

Response: We provide bridge course for slow learners and compulsory slot for each student with a faculty mentor in the time table (proof attached) - Our faculty members also upload lectures on YouTube lectures for advanced as well as slow learners (internet link)

https://www.youtube.com/playlist?list=PL-O9b4ltyhcrCylwJLeg5uR7CdFALd9uG

Proof attached:

- 1. Email communications
- 2. Mentorship communications
- 3. Screenshot of YouTube video page

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Key Indicator - 2.3 Teaching - Learning Process (20)

Metric Number: 2.3.1 QlM (5): Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Response: Students are involved in live research of the dept. Following are some of the live learning experience:

- a. Two academic field visits per program to enable on site learning experience for the students.
- b. Major projects in third and fourth semesters which entails working on live projects and research areas. Students are required to find answers to the research questions and compile a report at the end of the project period.
- c. Opportunity to undertake summer and winter internship with organizations working in the field of water.
- d. Role play on transboundary water conflict.

In addition, students are taken to the local water issues to work on practical solutions as depicted in Fig. 2-

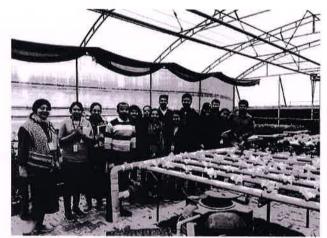


Figure 2 Visit to Indian Agricultural Research Institute on 20 Feb 2019



Figure 3 Eco-trail in Sanjay Van, Vasant Kunj by the Eco-club, TERI SAS on 23 Feb 2019

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Figure 4 Visit to Yamuna Biodiversity Park on 25 March 2019

Metric Number: 2.3.3 QnM (10): Ratio of students to mentor for academic and stress related issues (current year data)

2.3.3.1: Number of mentors

Response: 1:4 (mentor: student)

Proof attached

Key Indicator - 2.4 Teacher Profile and Quality (50)

Metric Number: 2.4.3 QnM (10): Average percentage of full time teachers against sanctioned posts during the last five years

Response: 4 (80%)

Metric Number: 2.4.4 QnM (10): Teaching experience of full time teachers in number of years (current year data)

2.4.3.1: Total experience of full-time teachers

Response:

Name	Teaching & Research & consultancy Experience (in years)	Specialization
Dr. Arun Kansal	24	Water resource management, Urban management, Energy- environment-climate linkages
Ms. Ranjana Ray Chaudhuri	26	Urban Water Management, Extreme Rainfall Analysis, Decentralised water and waste water treatment facilities, network design
Dr. Fawzia Tarannum	14	Gender, equity and water management, Water

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		Governance, Food-water- energy nexus
Dr. Sherly M A	7	Urban flood modelling and risk mapping, Disaster vulnerability assessment to natural/human-induced hazards, Risk and reliability analysis in water resources

Key Indicator - 2.5 Evaluation Process and Reforms (40)

Metric Number: 2.5.1 QnM (15): Average number of days from the date of last semester-end/ year-end examination till the declaration of results during the last five years

2.5.1.1: Number of days from the date of last semester-end/ year- end examination till the declaration of results year wise during the last five years

Response: MPEC of the dept. is held within 10 days of date of last semester-end/ year- end examination. For all practical purpose MPEC decides the final result of the students, however University takes few more days to declare the results.

Key Indicator - 2.6 Student Performance and Learning Outcomes (30)

Metric Number: 2.6.1 QlM (10): Programme outcomes, Programme specific outcomes and course outcomes for all Programmes offered by the institution are stated and displayed on website and communicated to teachers and students

Response: These are communicated to the students and are given in the compendium which is attached.

Metric Number: 2.6.2 QlM (10): Attainment of Programme outcomes, Programme specific outcomes and course outcomes are evaluated by the institution

Response: Student feedback is taken twice in each semester to assess the attainment of programme outcomes and course outcome at the University level. (Sample attached)

Criterion III - Research, Innovations and Extension (250)

Key Indicator - 3.1 Promotion of Research and Facilities (20)

Metric Number: 3.1.3 QlM (3): Number of teachers awarded international fellowship for advanced studies/ research during the last five years

3.1.3.1: The number of teachers awarded international fellowship for advanced studies / research year wise during the last five years

Year	2015	16	17	18	19
Number of			1		
teachers					

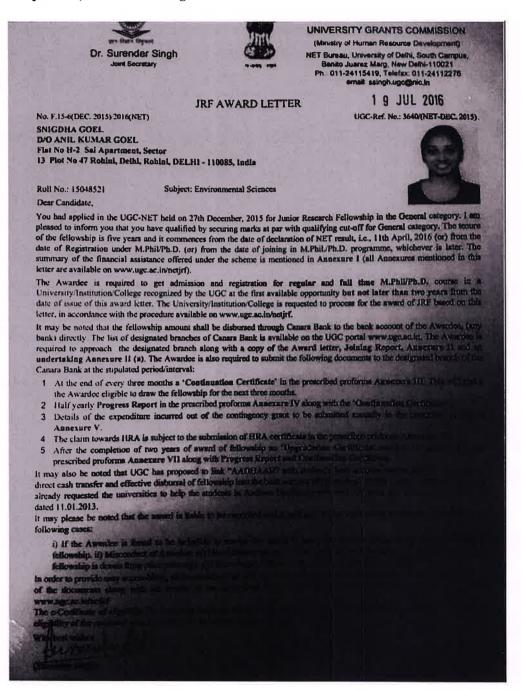
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Response: Dr. Fawzia Tarannum was awarded the Fulbright Hubert H Humphrey Fellowship and she spent a year at Cornell University.

Proof attached.

Metric Number: 3.1.4 QnM (4): Number of JRFs, SRFs, Post Doctoral Fellows, Research Associates and other research fellows in the university enrolled during the last five years

Response: JRF - 1 - Ms. Snigdha Goel



Metric Number: 3.1.6 QnM (5): Percentage of departments with UGC-SAP, CAS, DST-FIST, DBT, ICSSR and other similar recognitions by government agency (current year data)

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Response: None

Key Indicator - 3.2 Resource Mobilization for Research

Metric Number: 3.2.1 QnM (3): Grants for research projects sponsored by the non-government sources such as industry, corporate houses, international bodies, endowments, Chairs in the institution during the last five years (INR in Lakhs)

3.2.1.1: Total Grants for research projects sponsored by the non-government sources such as industry, corporate houses, international bodies, endowments year wise during the last five years (INR in Lakhs)

Year	2014	2015	2016	2017	2018	2019
INR in Lakhs	5 crores	5 crores	3 crores	3 crores	50 lakhs	20 lakhs
*(approx)						

^{*}This includes endowment grant received from Coca Cola Foundation Atlanta

Metric Number: 3.2.2 QnM (12): Grants for research projects sponsored by the government sources during the last five years (INR in Lakhs)

3.2.2.1: Total Grants for research projects sponsored by the government sources year wise during the last five years (INR in Lakhs)

Response: None for the government. However, we have secured funding from bilateral and multilateral agencies and corporate donors.

Metric Number: 3.2.3 QnM (5): Number of research projects per teacher funded by government and non-government agencies during the last five years

- 3.2.3.1: Number of research projects funded by government and non-government agencies during the last five years
- 3.2.3.2 : Number of full time teachers worked in the institution during the last 5 years

Response: One project per dept. faculty.

Key Indicator - 3.3 Innovation Ecosystem (30)

Metric Number: 3.3.3 QnM (7): Number of awards for innovation won by institution/teachers/research scholars/students during the last five years

3.3.3.1: Total number of awards for innovation won by institution/teachers/research scholars/students year wise during the last five years

Response: None

Metric Number: 3.3.4 QnM (10): Number of start-ups incubated on campus during the last five years

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3.3.4.1: Total number of start-ups incubated on campus year wise during the last five years

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Response: None

Key Indicators - 3.4 Research Publications and Awards (100)

Metric Number: 3.4.1 QnM (1): The institution has a stated Code of Ethics to check malpractices and plagiarism in Research

Response: Yes. We perform plagiarism check for student assignments, technical reports and research articles using Turnitin software. (Sample report attached)

Metric Number: 3.4.4 OnM (19): Number of Ph.D's awarded per teacher during the last five years

3.4.4.1: How many Ph.D's are awarded within last 5 years

3.4.4.2: Number of teachers recognized as guides during the last five years

Response: At the University level, faculty members have supervised Ph.Ds who have successfully defended and this average is 1. However, within the department none of the students have been awarded Ph.D since the dept. was set up in 2014.

Metric Number: 3.4.6 QnM (15): Number of books and chapters in edited volumes / books published, and papers in peer reviewed journals, national/international conference-proceedi

ngs per teacher during the last five years

3.4.6.1: Total number of books and chapters in edited volumes / books published, and papers in national/international conference-proceedings year wise during the last five years

Year	2015	2016	2017	2018	2019
Number	3	4	7	3	5

Response: Proof Attached

Key Indicators - 3.6 Extension Activities (40)

Metric Number: 3.6.1 QIM (10): Extension activities in the neighbourhood community in terms of impact and sensitising students to social issues and holistic development during the last five years

Response:

School University Network

-436

Mini Bliss (30 Government Schools) - 900

Undergraduate College students

-2108

Extension activities have been undertaken in the following Engineering/ Undergraduate Colleges across India

1. IIT Delhi

2. **VNIT Nagpur** July July

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- 3. Department of Environment Sciences, Lyallpur College, Jalandhar
- 4. Department of Management and Information Technology, Naipunnya College, Kochi
- 5. Department of Zoology, Nirmala College, Kochi
- 6. Department of Civil Engineering, Goa College of Engineering, Goa
- 7. Department of Biological Sciences, Birla Institute of Technology, Goa Campus, Goa
- 8. Department of Earth Sciences, Goa University, Goa
- 9. Khalsa College, Amritsar
- 10. Miranda House, Delhi University
- 11. Jamia Millia Islamia, Faculty of Science, Delhi
- 12. Krishna Institute of Engineering and Technology, Ghaziabad
- 13. Shaheed Rajguru College of Applied Sciences For Women, Ghaziabad
- 14. Daulat Ram, Delhi University
- 15. St. Teresa's College, Ernakulam, Kerala
- 16. Jamia Millia Islamia, Engineering and Technology, New Delhi
- 17. JSS Academy of Technical Education, Noida
- 18. Shivaji College, Delhi University
- 19. Aligarh Muslim University, Aligarh

Metric Number: 3.6.2 QnM (10): Number of awards and recognition received for extension activities from Government /recognised bodies during the last five years

3.6.2.1: Total number of awards and recognition received for extension activities from Government /recognised bodies' year wise during the last five years

Response: None

Metric Number: 3.6.3 QnM (10): Number of extension and outreach Programmes conducted in collaboration with industry, community and Non-Government Organisations through NSS/NCC/Red cross/YRC etc., during the last five years

3.6.3.1: Number of extension and outreach Programmes conducted in collaboration with industry, community and Non-Government Organisations through NSS/NCC/Red cross/YRC etc., year wise during the last five years

Year	2015	2016	2017	2018	2019
Number		1		4	3
		1.MDP on		2. Three MDPs	4.SWASH
		Gender,		on Gender,	WATERAID,
111		Equity and		Equity and	India
		Water		Water	5.MDP on
		Management		Management	Gender,
		- ICEWaRM,		- ICEWaRM,	Equity and
		Australia		Australia	Water
				3.Training on	Management
				Water Audit-	- ICEWaRM,
				WAPCOS	Australia
					6.Workshop
					on the World
					Environment
					Day- UNEP,
					Philips, E&E

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Metric Number: 3.6.4 QnM (15): Average percentage of students participating in extension activities with Government Organisations, Non-Government Organisations and Programmes such as Swachh Bharat, Aids Awareness, Gender Issue, etc. during the last five years

3.6.4.1: Total number of students participating in extension activities with Government Organisations, Non-Government Organisations and Programmes such as Swachh Bharat, Aids Awareness, Gender Issue, etc. year wise during the last five years

Number 7 1 3 2 i. Quality i. Tata i. Sehgal i. Sehgal Foundation India ii. Navjyoti Foundation Foundation Foundation Consultant (2)	'ear)14-16	2015- 17	2016-18	2017-19
iii. Vyakti Vikas Kendra India, Art of Living iv. Dhan Foundation v. National Institute of Urban Affairs	lumber	. Quality Council of India . Navjyoti Foundation . Vyakti Vikas Kendra India, Art of Living . Dhan Foundation . National Institute of Urban	i. Tata	i. Sehgal Foundation ii.Karvy	i. Sehgal Foundation ii. Quality Council of

Key Indicator - 3.7 Collaboration (20)

Metric Number: 3.7.1 QnM (5): Number of Collaborative activities for research, faculty exchange, student exchange per year

3.7.1.1: Total number of Collaborative activities for research, faculty exchange, student exchange year wise during the last five years

Response: 7 (Proof attached)

Metric Number: 3.7.2 QnM (5): Number of linkages with institutions/industries for internship, on the-job training, project work, sharing of research facilities etc. during last five years

3.7.2.1: Number of linkages for faculty exchange, student exchange, internship, field trip, on-the-job training, research, etc year-wise during the last five years

Year	2015	2016	2017	2018	2019
Number	6	9	6	9	7

Response: 29 Companies /NGOs/Think Tanks

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Metric Number: 3.7.3 QnM (10): Number of functional MoUs with institutions of national, international importance, other universities, industries, corporate houses etc. during the last five years (only functional MoUs with ongoing activities to be considered) (10)

3.7.3.1: Number of functional MoUs with institutions of national, international importance, other universities, industries, corporate houses etc. year wise during the last five years

Response: None

Criterion IV - Infrastructure and Learning Resources (100)

Key Indicator - 4.2 Library as a Learning Resource (20)

Metric Number: 4.2.7 QnM (3):

E-content is developed by teachers:

- 1. For e-PG-Pathshala
- 2. For CEC (Under Graduate)
- 3. For SWAYAM
- 4. For other MOOCs platform
- 5. For NPTEL/NMEICT/any other Government initiative
- 6. For institutional LMS

Options:

A. Any 4 of the above

B. Any 3 of the above

C. Any 2 of the above

D. Any 1 of the above

E. None of the above

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Response: D (YouTube lectures uploaded on the TERI SAS YouTube Channel)

<u>Criterion V - Student Support and Progression (100)</u>

Key Indicator - 5.1 Student Support (30)

Metric Number: 5.1.3 QnM (9):

Number of capability enhancement and development schemes

- 1. Guidance for competitive examinations
- 2. Career Counselling,
- 3. Soft skill development,
- 4. Remedial coaching,
- 5. Language lab,
- 6. Bridge courses
- 7. Yoga and Meditation
- 8. Personal Counselling

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Options:

A. 7 or more of the above B. Any 6 of the above

C. Any 5 of the above

D. Any 4 of the above E. ≤ 3 of the above

Response: C.



Key Indicator - 5.2 Student Progression (40)

Metric Number: 5.2.2 QnM (15): Percentage of student progression to higher education (previous graduating batch) (current year data)

5.2.2.1: Number of outgoing students progressing to higher education

Response:

S.No.	Name	Year of Passing	Institution (Pursuing Phd)
1.:	Priyank Jain	2016	IIT Mumbai
2	Shubhangi Tyagi	2016	IIT Delhi
3.	Deepali Goyal	2016	Delhi Technological University
4.	Bhavya Chawla	2017	TERI School of Advanced Studies

Metric Number: 5.2.3 QnM (15): Average percentage of students qualifying in state/ national/ international level examinations during the last five years (eg: NET/SLET/GATE/GMAT/CAT/GRE/TOEFL/Civil Services/State government examinations)

5.2.3.1: Number of students qualifying in state/ national/ international level examinations (eg: NET/SLET/GATE/GMAT/CAT/GRE/TOEFL/ Civil services/State government examinations) year wise during the last five years

Year	2017		
Number	Shubhangi Tyagi (GATE) Deepali Goyal (GATE)		

5.2.3.2: Number of students appearing in state/ national/ international level examinations (eg: NET/SLET/GATE/GMAT/CAT/GRE/TOEFL/ Civil Services/State government examinations) year wise during the last five years

Year	2014-16	2015-17	2016-18
Number	1 Praveen Kumar Subramani	1 Pragya Bhatt	Yashi Gautam Zeba Ahsan

Response: 3 students appearing for NET (Pragya) and 1 for Civil Services

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Key Indicator - 5.3 Student Participation and Activities (20)

Metric Number: 5.3.1 QnM (10): 5.3.1: Number of awards/medals for outstanding performance in sports/cultural activities at national/international level (award for a team event should be counted as one) during the last five years (10)

5.3.1.1: Number of awards/medals for outstanding performance in sports/cultural activities at national/international level (award for a team event should be counted as one) year wise during the last five years

Response: None

Metric Number: 5.3.2 QnM (5): Presence of an active Student Council & representation of students on academic & administrative bodies/committees of the institution

Response: None

Metric Number: 5.3.3 QnM (15): Average number of sports and cultural activities / competitions organised at the institution level per year

5.3.3.1: Number of sports and cultural activities / competitions organised at the institution level year wise during the last five years

Response: None

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