

## STRENGTHS OF THE DEPARTMENT

### Civil Engineering

- Water Resources System Planning and Management.
- Design and construction of Dams, Barrages, Weirs, Spillways, Regulators, Canal Systems etc.
- Design and construction of Hydropower Stations, Environmental impact assessment
- Rural and Urban Water Supply
- Climate Change and its impact on Water Resources
- Water Management for Sustainable Development

### Mechanical Engineering

- Hydromechanical Equipments
- Hydro turbine installation and operation
- Construction Plant and Machinery
- Design, installation and operation of Gates

### Social Sciences

- Socio economic survey
- Participatory Irrigation Management
- Water Distribution Practices
- Water Productivity assessment
- Diagnosing System performance
- Water and Land laws

### Sciences

- Water quality degradation
- Land quality degradation
- Soil water conservation & Watershed management
- Surface and sub surface drainage
- Irrigability surveys

### Electrical Engineering

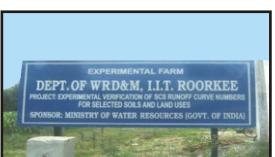
- Hydropower potential Assessment, planning and design
- Power Generation, Transmission and Distribution

### Irrigation Water Management

- Civil/Agricultural Engineering**
- Rehabilitation and Modernization of Irrigation System
  - Canal Design and Networking
  - Operation and maintenance of canal.
  - Design of Irrigation and flood control structure
  - Ground water assessment, development and management
  - Remote Sensing and GIS applications

### Agricultural Sciences

- Crop water requirement and management
- Cropping Systems Studies
- Irrigation System design and evaluation
- Command area development and management
- Pressurized irrigation system design and operation
- Land reclamation and on farm development



# INFORMATION BROCHURE (2020-21)



For Admission to Post Graduate Programmes  
in

Water Resources Development & Irrigation Water Management



**जल संसाधन विकास एवं प्रबन्धन विभाग**  
DEPARTMENT OF WATER RESOURCES DEVELOPMENT & MANAGEMENT

**भारतीय प्रौद्योगिकी संस्थान रुड़की**  
**INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**  
**ROORKEE - 247 667, (UTTARAKHAND), INDIA**

Last date of receipt of Application Form is June 30, 2020



Department of  
**WATER RESOURCES DEVELOPMENT & MANAGEMENT**  
 Indian Institute of Technology Roorkee



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Experts from field and other Departments of IIT Roorkee and Scientists of other Institutes  
 are invited to deliver expert lectures.

# INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE

(Formerly University of Roorkee)



## INFORMATION BROCHURE 2020-2021

**One-Year P.G. Diploma Programmes  
 and**

**Two-Year M.Tech. Degree Programmes**

in

### **WATER RESOURCES DEVELOPMENT**

(For Civil, Electrical, and Mechanical Engineers)

&

### **IRRIGATION WATER MANAGEMENT**

(For Civil, Agricultural Engineers, and  
 Agricultural Scientists)



## Department of **Water Resources Development and Management**

(Formerly Water Resources Development Training Centre)

**IIT Roorkee, Roorkee – 247 667  
 Uttarakhand, INDIA**

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Website : (<https://www.iitr.ac.in/departments/WRT/pages/index.html>)

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## IMPORTANT INFORMATION

The Department of Water Resources Development and Management (WRD&M), [formerly Water Resources Development Training Centre (WRDTC)] offer One year P.G.Diploma/Training and Two year M.Tech. Degree in Water Resources Development (WRD) and Irrigation Water Management (IWM).

Candidates are admitted in three categories:

1. Government/Semi Government/PSU Sponsored Candidates from India.
  - Candidates should apply through this Information brochure (please find the application form is appended)
2. Sponsored candidates from foreign countries
  - Candidates should apply through Indian Mission
3. Fresh undergraduates with GATE
  - Candidates should apply through website of IIT Roorkee

Last date of application form submission : June 30, 2020

Processing of applications for admission and sponsorship takes considerable time, therefore, the sponsored candidates should send their application well in time so as to reach the department latest by **June 30, 2020**

The Academic Session will start in the second week of **July 2020**

The selected candidates shall be governed by rules and regulations of Indian Institute of Technology Roorkee (IITR). In case of any dispute in interpretation of these or any other matter not covered in the rules and regulations, the decision of the Chairman of the Senate of IIT Roorkee shall be final and binding .

**Note: The candidates working in Government/Semi Government/PSU Organizations ONLY are eligible to apply through this Information Brochure. Remaining candidates can apply through the advertisement released by PG Admission office of IIT Roorkee in the month of March every year.**

For further information please visit the Institute and Department's website or contact:

**Dr. M. L. KANSAL, Head**

**Department of Water Resources Development and Management**

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Website : (<https://www.iitr.ac.in/departments/WRT/pages/index.html>)

## FOREWORD

Conventionally, the projects related to water resources focus on irrigation, hydropower development and flood control. In recent times, environmental concerns and climate change pose new challenges to engineers and decision makers for conceiving and executing projects related to water resources. There is a need for trained manpower to tackle these problems and to undertake challenging water resources development and management projects especially in Asian, African and Latin American countries. To fulfill this need, the Department of Water Resources Development and Management (WRDM) at Indian Institute of Technology Roorkee was founded in 1955, as a follow up of the Bandung (Indonesia) conference held under the aegis of UN, in 1954. It was envisioned by Late Shri Jawahar Lal Nehru, the first Prime Minister of India and Dr. A.N. Khosla, an Eminent Water Resources Engineer and the Vice Chancellor of the erstwhile University of Roorkee which is now known as Indian Institute of Technology Roorkee.



During the last 65 years, the Department of WRDM has provided training to professionals from 52 countries. Many of its alumni are occupying top-level decision-making positions in their organizations (Water/Irrigation/Agriculture etc.) in Asian, African and Latin American countries.

The department of WRDM has expertise in the fields of planning, investigation, design, construction, operation and maintenance of River Valley Multipurpose Projects as well as Irrigation and Drainage Systems (large/medium/small scales).

The department strives to meet the aspirations of the trainees and their sponsoring agencies by updating the curriculum with the latest developments for providing state of the art academic and training programs. The Department currently offers the following academic programs:

1. Water Resources Development for Civil, Electrical and Mechanical Engineers :
  - Training (One year duration)
  - Post Graduate Diploma (Two-Semester Course)
  - Master of Technology (Four-Semester Course)
2. Irrigation Water Management for Civil/Agricultural Engineers and Agricultural Scientists:
  - Training (One-year duration)
  - Post Graduate Diploma (Two-Semester Course)
  - Master of Technology (Four-Semester Course)

This Brochure describes the available facilities in the department as well as at IIT Roorkee and also provides information about the academic programs including eligibility for admission, fellowships, curriculum and opportunities for research and consultancy projects.

It gives me great pleasure to invite government and private enterprises dedicated to water resources development and management, from all over the world, to sponsor their officers for pursuing academic programs or training at our department of WRDM.

*Chaturvedi*

(Ajit Kumar Chaturvedi)  
Director, IIT Roorkee

## PREFACE

Water is a basic necessity of life and hence an important natural resource. Equitable allocation of fresh water to meet the rising demands of various sectors has been a challenging task for the water resources managers. Therefore, water resources development and management policies should be rigorous and must meet the regional demands.

The Department of Water Resources Development and Management (formerly Water Resources Development Training Centre) of IIT Roorkee during the last six decades has achieved a high level of performance in training the young water professionals with proper blend of theory and practice. This Department has earned the reputation and fame globally by imparting the knowledge and education to many scientists and professionals especially from Asia, Africa and other developing countries. Alumni of this department are found all over the world who have performed with excellence while serving the society at large.

The Department offers two Post-Graduate programmes i.e. Water Resources Development (WRD) (for Civil/Electrical/Mechanical Engineers) and Irrigation Water Management (IWM) (for Civil/Agricultural Engineers/Agricultural Scientists). The duration of these programmes are 24 months which includes series of lectures, practicals, educational tours and project reports along with dissertation. These Master of Technology (M. Tech) programmes are unique to provide knowledge in respective fields through credit-based course works. The programmes are constantly updated and latest subjects such as Remote Sensing, GIS, Climate Change impacts etc are incorporated to add great contemporary value.

Faculties of the Department are outstanding in their respective fields of specialization with diversified experience in planning, design, construction, operation and maintenance of multipurpose water resources projects and they do extensive research to advance the existing knowledge. Teaching in the Department has unique blend of both practical and theoretical concepts. The Department has been very actively involving in research, consultancy and extension activities. It is also known as a centre of excellence in Design of Water Resources Structure, Irrigation Planning and Management, Flood Control, Irrigation and Drainage, and Hydropower Development. The department helps the society by sharing agroclimatic information to the farmers in the regions.

This Information Brochure provides details regarding different academic programmes and procedures for admission to sponsored category of candidates. Besides, Indian graduates are also admitted through GATE for filling 13 seats in WRD and 08 seats in IWM programmes respectively. These candidates are required to apply separately in response to IIT Roorkee notifications for post-graduate admissions, Foreign students with fellowship need to apply through ITEC of Ministry of External Affairs, Govt. of India, or any other fellowship program. Sponsoring agencies are requested to encourage their officers to undergo training by taking advantage of the facilities available in this department.



M. L. KANSAL  
(M. L. KANSAL)  
Professor & Head

## 1.0 INTRODUCTION

### 1.1 General

Droughts and floods continue to hamper agricultural production and other productive activities in most of the developing countries of Asia, Africa and the Far East, and cause widespread misery and thus require adequate control on rivers. While a large part of their surface water resources remains untapped for irrigation, flood control and hydropower potential because of their economic backwardness, the growing population and the urgency for food and economic betterment call for the need of efficient use and management of water resources to step up their agricultural and industrial production. To accomplish several tasks from investigation to execution, there is always demand for trained manpower who can confidently undertake any water resources development projects. The need of trained manpower in Water Resources Development and Management for developing countries to undertake such a gigantic task was keenly realized in 1954 at Bandung Summit. Consequently this department was founded on Nov. 25, 1955 at the erstwhile University of Roorkee now Indian Institute of Technology Roorkee.

### 1.2 The Institute

Indian Institute of Technology Roorkee has its roots in the Roorkee College established in 1847 as the first engineering college in India, which was soon rechristened as Thomason College of Civil Engineering in 1854 after its greatest mentor James Thomason. After about 100 years of distinguished services, the college was elevated to University of Roorkee as the first Engineering University of Independent India on November 25, 1949. It has now 22 academic departments covering engineering, applied sciences, humanities & social sciences & management programme, 2 academic centres, 2 centres of excellence & 8 academic service centers and 4 supporting units.

Prior to becoming an IIT, the University of Roorkee was accredited by the National Assessment and Accreditation Council (NAAC), an autonomous institution of the University Grant Commission (UGC), with FIVE STARS (\*\*\*\*\*\*) for a period of five years in the year 2000. This is the highest grade that NAAC awards on five-point scale. In overall Engineering and Technology (Broad Area), IIT Roorkee has secured 156th position in the recent QS world ranking and maintained its national position at 7th Rank. IITR secured 6th position in NIRF ranking at national level.

### 1.3 The Department

The proposal for establishing a training centre in Water Resources Development originated with the United Nations Economic Commission of Asia and the Far East (now known as ESCAP) in 1951-52 and the Centre was established at the erstwhile University of Roorkee on November 25, 1955. The essential equipment was provided under the U.S. Technical Cooperation Mission and U.N. Technical Assistance Board. The government of India provided funds for constructing the building of all other facilities and also agreed to bear the entire recurring expenditure. The USAID, UNDP and ECAEF provided specialists for short-term lecture arrangement.

India was decided as the place of choice for opening the Centre, which had the unique distinction of having the biggest network of irrigation works, the largest area under irrigation and the greatest variety of irrigation structures. After independence, India also had embarked on an ambitious programme for the construction of river valley projects.

Erstwhile University of Roorkee being successor to the Thomason College of Civil Engineering the oldest and best-known technical institution in the East and having the basic infrastructure for imparting such training was obvious reason for establishing the Centre. Dr. A.N. Khosla, a legendary figure in the field of Water Resources Engineering and then Vice-Chancellor of the erstwhile University of Roorkee was the founder Director of the Centre. Consequent upon the conversion of University of Roorkee in Indian Institute of Technology Roorkee, the Water Resources Development Training Centre (WRDTC) was renamed as the Department of Water Resources Development and Management (WRD&M). The Department offers M.Tech. And Post-Graduate training programmes for specialization in the fields of Water Resources Development (for civil, electrical, and mechanical engineers) and Irrigation Water Management (for civil engineers, agricultural engineers, and agricultural scientists) separately.

#### **1.4 The Campus**

The campus of the Indian Institute of Technology Roorkee is located at an elevation of 268m (880 ft) above mean sea level (longitude 77°54'E and latitude of 29°52'N). The place is situated 30-60km (19-35 miles) south of the foothills of the Himalayas (Haridwar and Rishikesh) and is within easy reach of New Delhi, the capital of India, at a distance of about 180 km by road. It is also connected by rail to Delhi, Bombay and almost all State's capitals.

The temperature of Roorkee varies from 2.5°C to 34°C in winter and from 13°C to 45°C in summer. The average annual rainfall is 1170mm, the bulk of which occurs during mid June to mid of September. The months of May and June are hot. The rainy and winter months are generally pleasant. Clothes of cotton, silk or terylene and mosquito nets are required during summer and rainy seasons while woolen suits and blankets are essential during winter.

#### **1.5 Medium of Instruction**

The medium of instruction at the Department is English. Engineer trainees are expected to have sufficient working knowledge of English language.

#### **1.6 Objectives and Achievements**

The Department was established with the objective to train serving engineers from Asia, Africa and other developing countries in various aspects of Water Resources Development and Management. This brings together the engineering talents for a first-hand understanding and appreciation of each others problems and to help and evolve solutions by pooling of knowledge & new techniques suited to the conditions of Afro-Asian region. In addition, the programme offered in the department helps foster a feeling of brotherhood amongst the engineers of various countries. Since its creation in 1955, the department has admitted around 2851 serving engineers from 52 countries as detailed below:

Name of Country	No. of Trainees	Name of Country	No. of Trainees	Name of Country	No. of Trainees	Name of Country	No. of Trainees	No. of Trainees
Afghanistan	45	Indonesia	501	Mangolia	1	Somalia	1	1
Bangladesh	17	Iran	1	Mexico	1	Sri Lanka	38	
Brazil	1	Iraq	15	Myanmar	15	Sudan	36	
Bhutan	3	Japan	1	Nicaragua	1	South Sudan	6	
China	3	Jordan	2	Nigeria	2	Syria	10	
Costarica	1	Kenya	6	Nepal	187	Tanzania	33	
Cuba	1	Kazakhstan	2	Panama	1	Thailand	20	
Egypt	8	Lao PDR	9	Pakistan	1	UAE	1	
Eritrea	1	Liberia	6	Philippines	42	Uganda	2	
Ethiopia	34	Malawi	4	Sengal	1	Uzbekistan	12	
Ghana	13	Malaysia	7	Sierra Leone	7	Vietnam	52	
Guyana	1	Maldives	1	South Korea	3	Yeman	7	
India	1680	Mauritius	2	Singapore	1	Zambia	3	
<b>Grand Total</b>								<b>2851</b>

## **2.0 FACILITIES**

### **2.1 General**

The Department and the Institute have all the required facilities to provide the training in the fields of Water Resource Development and Irrigation Water Management of the international standard which are briefly described below.

### **2.2 Library**

The Department has a library of its own which is equipped with the latest literature on the topics relating to Water Resources Engineering and Irrigation Water Management. The proceedings of many important conferences and symposia in the field of Water Resources Engineering and Irrigation Water Management are also available. Considerable efforts and resources are devoted to keep the library up to date.

Apart from the departmental library, the Institute has modern well-equipped library housed in a separate block named Mahatma Gandhi Central Library. It has literature on all engineering subjects.

### **2.3 Laboratories**

The Department has its own laboratories including Soil and Water Engineering, Soil Mechanics and Irrigation Water Management, Groundwater, River Engineering, Hydropower Simulation, Geospatial and Electrical Testing for experimental work associated with classroom teaching, training and faculty research and consultancy. In addition to departmental laboratories, excellent laboratory facilities are also available in the Departments of Civil, Electrical, Hydrology, Mechanical, Earthquake Engineering and Earth Sciences etc.

### **2.4 Model Room**

The Department has a model room wherein different models depict several important aspects of water resources projects including layout works, structural details, construction facilities, etc. A complete hydrological model shows the various aspects of water resources engineering. Working models of tunneling operations and some major construction equipments are also the part of the model room.

### **2.5 Class Rooms/Lectures Theatre and Seminar Rooms**

The Department has spacious and well-ventilated classrooms and lecture theatre for regular classes. These rooms are well equipped with overhead projector, multimedia projection etc. Similarly the seminar room is equipped with overhead projector & multimedia projection system.

### **2.6 Computer Laboratory**

The Department has a computer laboratory with adequate facilities. The computer laboratory is being used for imparting education and development and use of

various software for analysis of water resources problems. In addition to the departmental computer laboratory, the computer centre of IIT Roorkee is equipped with high end Computing machines. The Department and Labs have internal accessibility for 24x7 in a week.

### **2.7 Lodging and Boarding**

The Khosla International House (KIH), its Azad Wing, Himgiri Apartment and A. N. Khosla Bhawan provide non-AC accommodation (with attached bathroom and a balcony) for the sponsored married officer trainees of this department. Some rooms are provided with kitchenette. A common mess in the KIH (formerly known as AsianAfrican Hostel) caters Indian and Continental cuisine.

### **2.8 Other Facilities**

The facilities such as PG students club, Multi Activity Centre, sports complex, swimming pool, and cinema hall of the IIT Roorkee can be availed by the trainee officers. Facilities of a well-equipped Hospital, Dairy, Bakery and Coffee shops are available in the campus. A post office as well as the branches of State Bank of India & Punjab National Bank are also located within the campus. Computerized centre for reservation of railway tickets is available in the campus.

### **2.9 Demonstration Farm & Meteorological Observatory**

A new demonstration farm for research work related to soil-water-plant relationship studies, various methods of irrigation, etc. has been developed. An agro meteorological laboratory has been established which provides continuous information to the farmers in the region.

### **3.0 ACADEMIC PROGRAMMES, RESEARCH AND CONSULTANCY**

#### **3.1 General**

Academic programs, research and consultancy services offered at this Department are governed by rules and regulations of the Institute which are reviewed and modified from time to time to keep pace with changes in the field of Water Resources Development. Brief information about present status is given below.

#### **3.2 Academic Programmes**

The Department offers broad based programmes of education and training in all aspects of Water Resources Development and Irrigation Water Management to in-service engineers and professionals having at least two years work experience. The following programmes are offered by the Department:

- P.G.Training/P.G.Diploma/M.Tech. in Water Resources Development  
(For Civil, Electrical, and Mechanical Engineers)
- P.G.Training/P.G.Diploma/M.Tech. in Irrigation Water Management  
(For Civil Engineers, Agricultural Engineers, and Agricultural Scientists)
- Ph.D. Programmes

The students may opt for either two-semester training/P.G. Diploma or four semesters M.Tech. Degree Programme or Ph.D Programme depending on their eligibility as per Institute rules. The details for admission for Ph.D. Programme are announced by IIT Roorkee separately. The candidates are required to visit the Institute website or look for the Institute advertisement. The minimum qualification for admission to Ph.D. programme in the department is as follows:

##### **1. Water Resources Development**

B.E./B.Tech./M.E./M.Tech. or equivalent degree in Civil, Electrical, Mechanical & Agricultural Engineering.

##### **2. Irrigation Water Management**

Master's degree in Agricultural Sciences/Social Sciences/Chemical Engineering/Biological Sciences/ Environmental Sciences/Engineering/ Natural Sciences with at least one paper in Mathematics at the graduate level or equivalent with a qualified NET CSIR/UGC/NET(LS)) or qualified GATE and minimum CGPA of 6.50 on a 10- point scale or equivalent as determined by the institute where letter grades are awarded or 60% where marks are awarded.

The students admitted to M.Tech. Programmes have to carry out extensive research work in third and fourth semesters. A choice from several elective subjects is available for the course work. These subjects usually provide advanced level of knowledge, which can be applied to the field problems. The subject of

dissertation covers useful practical or theoretical problems and each student carries out his/her dissertation work under the guidance of one or two faculty members in general. Some of the unique features of academic programmes of this department are as follows:

##### **3.2.1 Visits to project sites**

Visits to various water resources projects in the Country form an important aspect of the academic programme. The visits are undertaken to existing projects or under construction or recently completed and to the command area development works. The students study the choice of the type of dam and its design, river diversion arrangements, construction organization, degree of mechanization, etc. and the problems of water use and command area development. Lectures are delivered at the project sites by the field engineers closely connected with project problems. Discussions are oriented to bring out various problems faced in field along with their on-site solutions. After each site visit, students are required to submit a report showing an objective appraisal of the project visited. These reports are examined and assessed by the faculty members accompanying the tours. A viva-voce examination of the students is also conducted before the final assessment.

##### **3.2.2 Diagnostic Analysis**

The students admitted to Irrigation Water Management programme are required to carry out diagnostic analysis of a canal system. The study involves site visit for evaluation of main canal system, on-farm system, cropping pattern and socio-economic aspects. This important part of training involves interdisciplinary study and exposes students to the field problems of irrigated agriculture. The students collect field data, analyze it and prepare a report. These reports are examined and assessed by the faculty guiding the analysis. A viva-voce examination of the students is also conducted before final assessment.

##### **3.3 Short Term Training Programmes**

The Department has also been offering special short-term training courses in Water Resources Development and Irrigation Water Management for the benefit of in-service engineers from time to time. The Department has organized several such special short-term courses at the request of foreign and Indian Governments for training engineers, agriculturists and administrators in specialized fields. These include the courses such as Irrigation efficiency, Hydropower system planning, power electronics, Hydrological & geological aspects of hydropower developments, river basin planning, applications of system design techniques, ground water development, on-farm development and area related to water supply etc. The Department has also organized short-term courses for training the senior level executives and administrators in water resources development and administration under the sponsorship of the Training Division of the Department of Personnel and Administrative Reforms, Government of India. In brief, the Department has all the facilities to conduct such short-term training programmes in the fields of Water Resources Development and Irrigation Water Management including environmental flow, sustainable development, rural and urban water supply and so on.

### **3.4 Research Projects and Consultancy Activities**

In addition to research activities through M.Tech and Ph.D. dissertations, the Department is actively engaged in carrying out sponsored research projects. The Department also renders useful technical services to various organizations and helps in solving complex field problems through consultancy and research projects sponsored by national and international organizations of repute like Ministry of Water Resources (MoWR), Indian Space Research Organization (ISRO), Department of Science and Technology (DST), Government of India. Faculty members are leading/have led several International projects which includes Indo-Netherland, Indo-Norway, EU and IUCN projects. There has been a considerable expansion in research and consultancy activities in the Department in recent years. In the areas of Water Resources Planning, Design, Development and Management (Hydropower, Water Supply, Flood, Control, Irrigation), Surface and Ground Water Hydrology, Environmental Impact Assessment, Water Quality Modeling, Hydraulic and Hydrologic Design Modeling, River Engineering, System Analysis, Interbasin Transfer, Basin Planning and Development, Irrigation Water Management, Agricultural Crop Planning, Natural Resources Management using Remote Sensing and GIS, variable Speed Pumped Storage Plants, Hydro-Electric Systems.

### **3.5 Placement Status of GATE Students**

In the past, majority of the students admitted through GATE have been suitably placed in academic/research/industry after the completion of their M.Tech Programmes.

## **4.0 ADMISSION AND FELLOWSHIP**

### **4.1 General**

Admission and Fellowship of the sponsored candidates are governed by rules and regulations of the Institute and Government of India, which are reviewed and modified from time to time. Brief information about eligibility requirements for admission to various courses and fellowship are given below:

### **4.2 Categories of P.G. Officer Trainees and Students**

The P.G. Diploma/Training and M.Tech. Programme in Water Resources Development (WRD) (for Civil / Electrical / Mechanical engineers) will have a total intake of 50 students with a maximum of 10 each from Mechanical Engineering and Electrical Engineering backgrounds, while remaining 30 seats are earmarked for those having Civil Engineering background. P.G./M.Tech. Programme in Irrigation Water Management (IWM) (for Civil / Agricultural engineers / Agricultural Scientists) will have a total intake of 20 students. In addition, thirteen (13) seats in WRD and eight seats (8) in IWM are filled through GATE qualified fresh Indian graduates.

For the purpose of admission and award of scholarships, the officer trainees are grouped into five categories as follows :

#### **Category**

- I Officer trainees sponsored by Indian or foreign governments whose total expenses (including pay and allowances, tour expenses, etc.) are borne by the sponsoring government or met under some aid programmes.
- II Officer trainees sponsored by industry and public/private enterprises in India whose expenses are fully met by their sponsors as in category I.
- III Government nominees from India on study leave on full pay or on half pay but not entitled to any other payments from their employers or as Part-Time students.
- IV Government nominee on leave of a kind other than study leave.
- V Students admitted through GATE.

#### **Group of Officers/Students**

#### **4.2.1 Eligibility for Admission**

Eligibility criterion for admission to various programmes are given below:

##### **Programme**

**P.G. Dip. / Training/ M.Tech**  
Water Resources Development

**P.G. Dip. / Training /M.Tech**  
Irrigation Water Management

Requisite Experience  
(For sponsored Candidates) :

##### **Eligibility Qualification**

Bachelor Degree in Civil/Electrical/Mechanical/ Electronics & Tele-Communication Engineering or its equivalent.

Bachelor Degree in Civil Engg. or equivalent /Agricultural Engineering or its equivalent or M.Sc. Agriculture in Agronomy, Soil Science, Agro meteorology with mathematics as one of the paper at the level of B.Sc./B.Sc. Agriculture.

As per enclosed Appendix - I

PG Dip./Training/M. Tech.

Part time candidate

PhD

As per enclosed Appendix - III

The details of admission to PhD programmes are announced by IIT Roorkee separately. The candidates are required to visit the Institute website or look for the Institute advertisement.

Notes:

Minimum Marks

For General/OBC category candidates, minimum 60 % marks or CGPA 6.50 on 10 - point scale or equivalent grade is required **in the qualifying examination**.

For SC/ST/PD (Person with special abilities) candidates, minimum 55% marks or CGPA 5.5 on 10 - point scale or equivalent grade is required **in the qualifying examination**.

Training

**The department also offers 12 months training programme for sponsored candidates having less than 60% marks**

Equivalent qualification of Bachelor degree in engineering shall be considered if found acceptable by the equivalence committee of the Institute.

Educational Institutions of India should be recognized by All India Council for Technical Education (AICTE).

QIP

A few candidates can be admitted under Quality Improvement Programme (QIP) for which aspirants may contact the Coordinator (QIP), Indian Institute of Technology Roorkee, Roorkee -247667.

#### **4.3 Procedure for Admission and Grant of Scholarship**

Applications for admission must reach the Department by 30 June 2020 **positively** so that the selection of candidates is notified by first week of July 2020. The estimated expenses for the two semesters PG Diploma and four semesters M.Tech. Degree programmes are given in Appendix -VI.

##### **4.3.1 Indian Candidates**

Applications should be submitted in the prescribed form (Appendix-II) completed in all respect and duly endorsed by the employer government or organization. No scholarship is available for sponsored Indian candidates whether full-time & part-time. Sponsored candidates should produce certificate of financial guarantee from the sponsoring government organization for meeting all their expenses along with a provision for allowances during their academic degree programmes.

##### **4.3.2 Foreign Candidates**

The application of candidates sponsored by foreign governments for admission should be submitted to Indian mission in their country. These students should send the completed checklist given in the Appendix-V to Head, Dept. of WRD&M.

The procedure for obtaining various scholarship/fellowship is described below:

##### **(a) Government of India Scholarship/ Fellowship**

For ITEC and for SCAAP Awards, applications should be submitted in the prescribed

form (Appendix-II) and sent through Embassies/Missions of India to ***The Ministry of External Affairs, Technical Cooperation Division, B-Wing, Jawaharlal Nehru Bhawan, 23-D Janpath, New Delhi - 110011 India.***

For TCS (Colombo Plan), applications in Form A2 and A3 (obtainable from Embassies/Missions of India in the countries of the candidates) should also be sent through Embassies/Missions of India to ***The Ministry of External Affairs, Technical Cooperation Division, B-Wing, Jawaharlal Nehru Bhawan, 23-D Janpath, New Delhi - 110011 India***, along with application in the form in Appendix-II. The duration of fellowship shall be one year/two year as per policy of Government of India on date.

##### **(b) United Nations/ESCAP Fellowship**

Applications of candidates for admission and grant of United Nations/ESCAP (Economic and Social Commission for Asia and the Pacific) fellowships should be submitted in the prescribed form (UN/ESCAP) and forwarded in accordance with the procedure prescribed by the government of the applicant's country to the United Nations Headquarters, New York, or ESCAP, Bangkok as the case may be through the Resident Representative of his/her country under notification to ***Head, Department of Water Resources Development & Management, Indian Institute of Technology Roorkee, Roorkee 247667, India and to the Resident Representative, United Nations Development Programme, 55, Lodi Estate, New Delhi 110003, India.***

##### **(c) Commonwealth Scholarship**

Applications of candidates from Commonwealth countries for admission and grant of scholarship under the Commonwealth Fund of Technical Cooperation should be submitted in the prescribed form (Appendix-II) and forwarded through the Embassies/Missions of India to the Director, Fellowships and Training Programme, Commonwealth Fund for Technical cooperation, Commonwealth Secretariat, Marlborough House, Pall Mall, London SW 1Y 5HX, with a copy to Head, Water Resources Development and Management, Indian Institute of Technology Roorkee, Roorkee 247667 India.

##### **(d) Government Sponsored**

Applications of candidates sponsored by foreign governments at their own cost may be submitted in the prescribed form (Appendix-II) and forwarded through the Embassies/Missions of India to ***Head, Department of Water Resources Development & Management, Indian Institute of Technology Roorkee 247 667, India with a copy to The Ministry of External Affairs, Technical Cooperation Division, B-Wing, Jawaharlal Nehru Bhawan, 23-D Janpath, New Delhi - 110011 India***

However, in this case the charges need to be paid by the candidate shall be intimated separately on request.

#### **4.4 HIV Test**

The Govt. of India has made test for HIV compulsory for all Foreign Students arriving to India. It is therefore desired that every Foreign Trainee (Scholarship holder or Self Financing) coming to India should get themselves checked for HIV before leaving his/her home country, irrespective of the fact that he/she will be subjected to HIV test after joining the program at this department.

#### **4.5 VISA Regulations**

Foreign students intending to come to India for studies whether on self-financing basis or on Govt. of India scholarships, are required to get STUDENT'S VISA from Indian missions abroad. For students on Govt. of India scholarships, respective of Indian missions are instructed by ICCR to grant regular students Visa once their admissions in Indian Universities are confirmed. Students not having firm letters of admission from universities etc., will be issued Provisional Students Visa by the Indian missions abroad on the basis of provisional admission certificate issued by university/recognized college or educational institution in India. Such Provisional Students' Visa will be valid for a period of 3 months and no extension of Provisional Students Visa will be allowed. Change of Purpose' of visit of foreign trainees to India is not allowed once they reach India. To avoid this situation, all foreign students on self-financing basis are requested to obtain regular students' Visa from Indian Missions abroad by producing confirmed letter of acceptance/admission certificate from the University/Institution.

### **5.0 CURRICULUM AND PERFORMANCE EVALUATION**

#### **5.1 General**

Curriculum and Performance Evaluation is governed by rules and regulations of the Institute, which are reviewed and modified from time to time. Brief information about present status of Curriculum and Performance Evaluation in various courses is given below :

#### **5.2 Curriculum**

Post-Graduate education demands the right kind of ambience, a good infrastructure, an acclaimed and dedicated faculty and considerable flexibility in the course structure. IIT Roorkee is the institute, which provides these ingredients in abundance. Every course has been assigned certain number of credits depending on the workload it involves. The performance of the candidate is continuously evaluated to motivate students to improve their performance throughout the duration of programme and a letter grade is awarded on the completion of the course. The course structure has enough flexibility and allows a student to progress at an optimum pace, commensurate with his intellectual quotient and convenience.

##### **5.2.1 Teaching scheme**

The course structures of the two academic Programmes provide sufficient flexibility for specialization in (i) Water Resources Development (for civil / electrical / mechanical engineers) and (ii) Irrigation Water Management (for civil /agricultural engineers / agricultural scientists). The academic curriculum for Master of Technology/PG Diploma is given in Tables 1 & 2.

##### **5.2.2 Credits (Crs) and weekly contact Hours**

Each course (subject) has a number of credits which depend on the academic load and weekly contact hours for Lectures (L), Tutorial (T) and Practical (P). One credit is normally assigned to one hour of lecture or one hour of tutorial or two hours of practical per week and distribution is expressed as Crs (L-T-P).

**Table-1 Academic Curriculum for P.G. Diploma / Master of Technology in  
WATER RESOURCES DEVELOPMENT (WRD)**

S. No	SUBJECT CODE	COURSE TITLE	SUBJECT AREA	CREDITS	Contact Hours per Week			Exam. Duration (Hrs.)		Relative Weightage (%)				
					L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	
<b>1<sup>st</sup> YEAR                    I SEMESTER (AUTUMN)</b>														
1.	WRN-501	System Design Techniques	PCC	4	3	1	-	3	-	25	-	25	50	-
2.		Program Core Course 1	PCC	4	3	1	-	3	-	25	-	25	50	-
3.		Program Core Course 2	PCC	4	3	1	-	3	-	25	-	25	50	-
4.		Program Core Course 3	PCC	4	3	1	-	3	-	25	-	25	50	-
5.		Program Elective Course	PEC	4				as per elective course						
		<b>Sub Total</b>		<b>20</b>										
<b>II SEMESTER (SPRING)</b>														
1.	WRN-505	Preparation of Water Resources Project Report	PCC	2	-	-	4	-	-	-	50	-	-	50
2.		Program Elective Course	PEC	4	3	1	-	3	-	25	-	25	50	-
3.		Program Elective Course	PEC	4	3	1	-	3	-	25	-	25	50	-
4.		Program Elective Course	PEC	4				as per elective course						
5.		Program Elective Course	PEC	4				as per elective course						
6.	WRN-700	Seminar	SEM	2	-	-	-	-	-	-	-	100	-	
		<b>Sub Total</b>		<b>20</b>										
Note: P.G. Diploma course in WRD shall be of ONE YEAR duration comprising of semesters I and II only, with a minimum credits of 40														
<b>2<sup>nd</sup> YEAR                    III SEMESTER (AUTUMN) )</b>														
1.	WRN-701A	Dissertation Stage I*	DIS	12	-	-	-	-	-	-	-	100	-	
		<b>Sub Total</b>		<b>12</b>										
* to be continued and grade to be awarded in the next semester														
<b>IV SEMESTER (SPRING)</b>														
1.	WRN-701B	Dissertation (continued from 3 <sup>rd</sup> Semester)	DIS	18	-	-	-	-	-	-	-	100	-	
		<b>Sub Total</b>		<b>18</b>										
		<b>Total</b>		<b>70</b>										

#### PROGRAMME CORE SUBJECTS

##### For Civil Background

1.	WRN-502	Design of Water Resources Structures	PCC	4	3	1	-	3	-	25	-	25	50	-
2.	WRN-503	Water Resources Planning and Management	PCC	4	3	1	-	3	-	25	-	25	50	-
3.	WRN-504	Applied Hydrology	PCC	4	3	1	-	3	-	25	-	25	50	-

##### For Electrical Background

1.	WRN-531	Hydro Generating Equipment	PCC	4	3	1	-	3	-	25	-	25	50	-
2.	WRN-532	Hydropower System Planning	PCC	4	3	1	-	3	-	25	-	25	50	-
3.	WRN-533	Power System Protection Application	PCC	4	3	1	-	3	-	25	-	25	50	-

##### For Mechanical Background

1.	WRN-532	Hydropower System Planning	PCC	4	3	1	-	3	-	25	-	25	50	-
2.	WRN-551	Design of Hydro Mechanical Equipment	PCC	4	3	1	-	3	-	25	-	25	50	-
3.	WRN-552	Construction Planning and Management	PCC	4	3	1	-	3	-	25	-	25	50	-

#### PROGRAMME ELECTIVES COURSE (WRD)

S. No	SUBJECT CODE	COURSE TITLE	SUBJECT AREA	CREDITS	L	T	P	Theory			Practical			CWS	PRS	MTE	ETE	PRE
								CWS	PRS	MTE	ETE	PRE						
1.	WRN-511	Geotechnical Engineering	PEC	4	3	1	-	3	-	25	-	25	50	-				
2.	WRN-512	Hydropower and Appurtenant Works	PEC	4	3	1	-	3	-	25	-	25	50	-				
3.	WRN-513	Earth and Rockfill Dams	PEC	4	3	1	-	3	-	25	-	25	50	-				
4.	WRN-514	Masonry and Concrete Dams	PEC	4	3	1	-	3	-	25	-	25	50	-				
5.	WRN-515	Irrigation Structures	PEC	4	3	1	-	3	-	25	-	25	50	-				
6.	WRN-516	Rural and Urban Water Supply	PEC	4	3	1	-	3	-	25	-	25	50	-				
7.	WRN-517	River Engineering	PEC	4	3	1	-	3	-	25	-	25	50	-				
8.	WRN-518	Finite Element Methods	PEC	4	3	1	-	3	-	25	-	25	50	-				
9.	WRN-519	Water Resources System Reliability	PEC	4	3	1	-	3	-	25	-	25	50	-				
10.	WRN-520	Environmental Impact Assessment of Water Resource Projects	PEC	4	3	1	-	3	-	25	-	25	50	-				
11.	WRN-521	Groundwater Hydrology	PEC	4	3	1	-	3	-	25	-	25	50	-				
12.	WRN-522	Climate Change and Water Resources	PEC	4	3	1	-	3	-	25	-	25	50	-				
13.	WRN-534	Substation and Transmission line Design	PEC	4	3	1	-	3	-	25	-	25	50	-				
14.	WRN-535	Installation Maintenance and Testing of Hydro Generating Equipment	PEC	4	3	1	-	3	-	25	-	25	50	-				
15.	WRN-536	Maintenance Management in Power Plants	PEC	4	3	1	-	3	-	25	-	25	50	-				
16.	WRN-537	Power System Management	PEC	4	3	1	-	3	-	25	-	25	50	-				
17.	WRN-538	Electrical Design of Hydro Power Station	PEC	4	3	1	-	3	-	25	-	25	50	-				
18.	WRN-539	Power System Operation and Control	PEC	4	3	1	-	3	-	25	-	25	50	-				
19.	WRN-540	Control and Instrumentation of Hydro Power Plant	PEC	4	3	1	-	3	-	25	-	25	50	-				
20.	WRN-541	Power System Analysis	PEC	4	3	1	-	3	-	25	-	25	50	-				
21.	WRN-542	Power System Reliability	PEC	4	3	1	-	3	-	25	-	25	50	-				
22.	WRN-543	Insulating Systems	PEC	4	3	1	-	3	-	25	-	25	50	-				
23.	WRN-544	Planning and Design of Small Hydro Power Schemes	PEC	4	3	1	-	3	-	25	-	25	50	-				
24.	WRN-545	Power Electronics Controlled Hydro-Electric Systems	PEC	4	3	1	-	3	-	25	-	25	50	-				
25.	WRN-546	Modelling and Simulation of Hydro-Electric Energy Systems	PEC	4	1	1	4	2	2	20	2	-	40	20				
26.	WRN-547	Synchronous and Asynchronous Generators Laboratory	PEC	4	1	-	6	-	3	-	5	0	-	50				
27.	WRN-548	Power Electronics Laboratory	PEC	4	1	-	6	-	3	-	5	0	-	50				
28.	WRN-549	Control and Instrumentation Laboratory	PEC	4	1	-	6	-	3	-	5	0	-	50				
29.	WRN-553	Design of Construction Job Facilities	PEC	4	3	1	-	3	-	25	-	25	50	-				
30.	WRN-554	Construction Plant Machinery	PEC	4	3	1	-	3	-	25	-	25	50	-				
31.	WRN-555	Air Conditioning and Ventilation	PEC	4	3	1	-	3	-	25	-	25	50	-				
32.	WRN-556	Construction Techniques	PEC	4	3	1	-	3	-	25	-	25	50	-				
33.	WRN-571	Design of Irrigation Structures and Drainage Works	PCC	4	3	1	-	3	-	25	-	25	50	-				
34.	WRN-572	Soil and Agronomy	PEC	4	3	1	-	3	-	25	-	25	50	-				
35.	WRN-580	Renewable Energy System Technology	PEC	4	3	1	-	3	-	25	-	25	50	-				
36.	WRN-581	Water Quality Monitoring and Modeling	PEC	4	3	1	-	3	-	25	-	25	50	-				
37.	WRN-583	Remote Sensing and GIS Applications in Agriculture	PEC	4	3	1	-	3	-	25	-	25	50	-				
38.	WRN-586	Groundwater Development and Management	PEC	4	3	1	-	3	-	25	-	25	50	-				
39.	WRN-587	Watershed Development and Management	PEC	4	3	1	-	3	-	25	-	25	50	-				

**Table 2 - Academic Curriculum for P.G. Diploma / Master of Technology in  
IRRIGATION WATER MANAGEMENT (IWM)**

S.No	SUBJECT CODE	COURSE TITLE	SUBJECT AREA	CREDITS	Teaching Scheme			Contact Hours per Week	Exam. Duration (Hrs.)	Relative Weightage (%)								
					L	T	P			Theory	Practical	CWS	PRS					
<b>1<sup>st</sup> YEAR</b>																		
<b>I SEMESTER (AUTUMN)</b>																		
1.	WRN-501	System Design Techniques	PCC	4	3	1	-+	3	-	25	-	25	50	-				
2.	WRN-571	Design of Irrigation Structures and Drainage Works	PCC	4	3	1	-	3	-	25	-	25	50	-				
3.	WRN-573	Principles and Practices of Irrigation	PCC	4	3	1	-	3	-	25	-	25	50	-				
4.	WRN-575	On Farm Development	PCC	4	3	1	-	3	-	25	-	25	50	-				
		Program Elective Course	PEC	4	3	1	-	3	-	25	-	25	50	-				
<b>Sub Total</b>				<b>20</b>														
<b>II SEMESTER (SPRING)</b>																		
1.	WRN-574	Diagnostic Analysis	PCC	2	-	-	4	-	-	-	50	-	-	50				
2.		Program Elective Course	PEC	4	3	1	-	3	-	25	-	25	50	-				
3.		Program Elective Course	PEC	4	3	1	-	3	-	25	-	25	50	-				
4.		Program Elective Course	PEC	4	as per elective course													
5.		Program Elective Course	PEC	4	as per elective course													
6.	WRN-700	Seminar	SEM	2	-	-	-	-	-	-	-	100	-					
<b>Sub Total</b>				<b>20</b>														
<b>Note: P.G. Diploma course in IWM shall be of ONE YEAR duration comprising of semesters I and II only, with a minimum credits of 40</b>																		
<b>2<sup>nd</sup> YEAR</b>																		
<b>III SEMESTER (AUTUMN)</b>																		
1.	WRN-701A	Dissertation Stage I *	DIS	12	-	-	-	-	-	-	-	100	-					
<b>Sub Total</b>				<b>12</b>														
<i>* to be continued and grade to be awarded in the next semester</i>																		
<b>IV SEMESTER (SPRING)</b>																		
1.	WRN-701B	Dissertation Stage II (contd. From 3 <sup>rd</sup> Semester)	DIS	18	-	-	-	-	-	-	-	100	-					
<b>Sub Total</b>				<b>18</b>														
<b>Total</b>				<b>70</b>														

**PROGRAMME ELECTIVES COURSES (IWM)**

S. No	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1.	WRN-503	Water Resources Planning and Management	PEC	4	3	1	-	3	-	25	-	25	50	-
2.	WRN-504	Applied Hydrology	PEC	4	3	1	-	3	-	25	-	25	50	-
3.	WRN-513	Earth and Rockfill Dams	PEC	4	3	1	-	3	-	25	-	25	50	-
4.	WRN-516	Rural and Urban Water Supply	PEC	4	3	1	-	3	-	25	-	25	50	-
5.	WRN-520	Environmental Impact Assessment of Water Resource Projects	PEC	4	3	1	-	3	-	25	-	25	50	-
6.	WRN-522	Climate Change and Water Resources	PEC	4	3	1	-	3	-	25	-	25	50	-
7.	WRN-572	Soil and Agronomy	PEC	4	3	1	-	3	-	25	-	25	50	-
8.	WRN-576	Operation Maintenance and Management of Irrigation Systems	PEC	4	3	1	-	3	-	25	-	25	50	-
9.	WRN-577	Water and Land Laws	PEC	4	3	1	-	3	-	25	-	25	50	-
10.	WRN-578	Rural Sociology and Irrigation Economics	PEC	4	3	1	-	3	-	25	-	25	50	-
11.	WRN-579	Evaluation of Irrigation Project	PEC	4	3	1	-	3	-	25	-	25	50	-
12.	WRN-580	Renewable Energy System Technology	PEC	4	3	1	-	3	-	25	-	25	50	-
13.	WRN-581	Water Quality Monitoring and Modeling	PEC	4	3	1	-	3	-	25	-	25	50	-
14.	WRN-582	Theory of Seepage	PEC	4	3	1	-	3	-	25	-	25	50	-
15.	WRN-583	Remote Sensing and GIS Applications in Agriculture	PEC	4	3	1	-	3	-	25	-	25	50	-
16.	WRN-584	Cropping System Modeling	PEC	4	3	1	-	3	-	25	-	25	50	-
17.	WRN-585	Environmental Impact of Irrigated Agriculture	PEC	4	3	1	-	3	-	25	-	25	50	-
18.	WRN-586	Groundwater Development and Management	PEC	4	3	1	-	3	-	25	-	25	50	-
19.	WRN-587	Watershed Development and Management	PEC	4	3	1	-	3	-	25	-	25	50	-

**Experience (for sponsored candidates)**

- (A) Full time sponsored candidates must have a minimum of two years of full-time work experience till the last date of submission of application form in responsible capacity in a Registered Firm/Company/ Industry/Educational and Research Institution/Govt./Quasi Govt./Autonomous Organization in the relevant field in which admission is being sought. The Firm /Company/Industry shall either be a public sector undertaking or a public limited undertaking registered in a stock exchange or a private concern whose annual turnover during the past 2 years exceeds Rs. 5.0 crores.

Note: The candidates working in Institute /University awarding PG degree itself are not eligible for admission as Part Time or Full Time candidates, if facilities are not available except QIP Candidates.

- (B) Candidates having AMIE/AMIS/AMIChE/AMIIM/Grad IETE, who possess B.Sc. or Diploma in engineering and have at least three years research, teaching or other professional experience at the last date of submission of application acquired after passing the qualifying examination in relevant field, are also eligible to apply for admission to M.Tech. Courses.

**WATER RESOURCES DEVELOPMENT AND MANAGEMENT****Indian Institute of Technology Roorkee, Roorkee – 247667, India**

(Application Form for Sponsored Candidates only)

Paste the  
Attested  
Photograph

**APPLICATION FORM (2020-2021)**

(Please select one Academic Programme out of A or B and tick in appropriate box)

<b>A) Water Resources Development</b>	<b>B) Irrigation Water Management</b>	
<input type="checkbox"/>	<input type="checkbox"/>	
Please check eligibility criteria to the Programme in which admission is sought		
<input type="checkbox"/> Training Certificate	<input type="checkbox"/> P.G. Diploma	<input type="checkbox"/> M.Tech Degree

Name (**block letters**)  
(Mr/Ms\*).....

(Surname) (Middle name) (first name)

Present Address: .....

Tel. & Fax (with code) : .....

Email: .....

Permanent Address: .....

Tel. & Fax (with code): .....

Email: .....

Place/Country of birth ..... Date of birth ..... Citizenship.....

Marital Status\*: *Married/Unmarried*.

Proof of proficiency in English (for foreign students only):.....

Math at UG Level : Yes / No

Math at 10+2 Level : Yes / No

**A) Academic qualifications other than Engineering (beginning from High School):**

College/Institution	Degree or Examination passed	Year of Passing	Division with % of marks/ Grade Point Av.	Position/ Distinction	Main Subjects
Name and address					

**B) Professional/Engineering Qualification:**

College/Institution Name and address	Degree or Examination passed	Year of Passing	Division with % of marks/ Grade Point Av.	Position/ Distinction	Main Subjects

**C) Employment Record and Experience:**

Name of Department	Position held	Period		Details of work done
		From	To	

**Name & Signature of Applicant**

NOTE:

1. Applicant should strike off whichever is not applicable to him/her.
2. Attach attested copies of the certificates.
3. In case of award of grade points, please attach a certificate from the issuing University/Institution explaining the conversion formula for converting grade point average to percentage marks.

**D. Recommendations of Sponsoring/Nominating Authority**

The undersigned is pleased to sponsor Mr./Ms. .... who is working in this organisation for the last ..... years and is presently holding the rank/position of ..... for pursuing the P.G. Diploma Programme / M.Tech. Degree Programme in ..... at IIT Roorkee in the WRD&M.

His/Her conduct and character is good.

The Institution/Organization would relieve him/her immediately for joining the above course, if selected for admission. The Institution/Organization also agrees to pay all the contingent/expenses stipulated by the Institute. This is further certified that the sponsorship for admission will not be withdrawn midway till completion of the course.

Place : ..... Signature of Head of the Institution/ Organization with seal

Date : ..... Name: .....

Designation .....

NOTE: Medical Certificate in the enclosed Proforma to be submitted with this application form.

**MEDICAL CERTIFICATE PROFORMA****A. Candidate's Declaration**

1. Name .....
2. Whether you have been treated for
  - (a) Hypertension (High Blood Pressure)
  - (b) Diabetes
  - (c) Mental illness
3. Mark of Identification

(Signature of Applicant)  
Dated.....

**B. Doctor's Certificate**

I certify that I have carefully examined Mr./Ms and find that he/she is healthy and he/she has no disease constitutional weakness or bodily deformity or medical infirmity rendering him/her unfit now or in future, for active outdoor service and strenuous studies except .....

I do not consider/do consider it a disqualification for admission to Indian Institute of Roorkee, Roorkee

1. Height (without shoes) Weight (with thin clothes)
2. Chest (over nipples) on complete expiration On full inspiration
3. Are gums and teeth healthy ?
4. Any evidence of Adenitis, skin or venereal diseases
5. Any evidence of Epilepsy
6. Any signs of mental illness or drug addiction
7. Is the chest symmetrical and lungs normal?
8. Is the heart normal in size and sounds normal?
9. Blood pressure systolic ..... Diastolic .....
10. Eye sight R/E ..... L/E ..... (Distance and near vision)

Does he/she use glasses and if so, Power of glass R/E.....L/E.....

1. Reading.....
2. Distant.....

11. Is there only other disease of eye including Colour/Night blindness? Is trachoma present?.....

12. Any evidence of enlargement of Liver or Spleen or Anaemia present?.....

13. Is Hydrocele or Hernia present ? If operated, is the scar healthy?.....
14. Urine RE .....
15. X-Ray Chest PA.....
16. ELISA test (foreign students and candidates who have visited a foreign country within the last 6 months).....

For Female candidates

- Any evidence of gynecological disorder.....
- Condition of Breasts/Uterus.....
- Period of gestation (if pregnant).....

(Signature of Doctor)  
Name and Designation

### APPENDIX – III

## **Part-Time Sponsored Candidates (Three years duration)**

### **M.Tech (Part-Time)**

(a) These candidates must have a minimum of two years of full-time work experience till the last date of submission of application form in responsible Capacity in a Registered Firm/Company/Industry/Educational and Research Institution/Govt./Quasi Govt./Autonomous Organization in the relevant field in which admission is being sought. The Firm/Company/Industry shall either be a public sector undertaking or a public limited undertaking registered in a stock exchange or a private concern whose annual turnover during the past 2 years exceeds Rs. 5.0 crores. For a candidate employed in an educational Institution, it should be recognized by AICTE. Such organizations must be located either at Roorkee or within a radius of 20 km from Roorkee.

(b) The candidates seeking admission to programmes leading to M.Tech./M.Arch./M.U.R.P. including post M.Sc. but not qualified in GATE, may also be considered for admission to different academic programmes but their admission will be based on performance in an Interview/Written Test to be held at IIT Roorkee. The candidates will be called for Interview/Written Test on the basis of their results of the qualifying degree. However, no self sponsored candidate will be admitted for part time study.

(c) There will not be any age restriction. However, preference will be given to those who are below 45 years of age.

(d) For admission to a postgraduate programme as a part-time student, a certificate from the Head of the Institution/Organization as per Appendix-IIIA must be submitted along with the application.

(e) For part-time students, the concerned academic department will draw up the detailed academic programme on an individual basis.

(f) The part-time students will be required to attend all lectures, tutorials and practical classes for the courses prescribed for them and must satisfy the attendance requirements.

(g) The part-time students will not be eligible for any scholarship, prize etc. (h) The status of a part-time student will not be changed from part-time to a regular full-time student.

(i) Members of the Staff of the Indian Institute of Technology Roorkee seeking admission as part-time sponsored candidates should submit the sponsorship certificate from the Registrar and the Staff working in different projects in the Institute should submit the sponsorship certificate from the appointing authority. Preference in admission will be given to those candidates who are GATE qualified.

Note: The candidates working in Institute/ University awarding PG degree itself are not eligible for admission as part-time or full-time candidate, if facilities are not available except QIP candidates.

**No Objection Certificate  
(Required from candidates seeking admission on part-time basis)**

The undersigned is pleased to permit Mr./Ms. ....Who is working in this organization for the last .....years and is presently holding the rank/position of.....for pursuing the PG Programme (course) at IIT Roorkee in the Department of .....  
With specialization in the following areas.

1. .... 2. ....  
3. .... 4. ....

His/her conduct and character has been good.

The Institution/Organization would relieve him/her immediately for joining the above course, if selected for admission. If admitted the candidate will be permitted to be present at the Institute as required by the academic schedule for a period of three years and will continue to remain in service of this organization for the duration of the course.

Place.....

Signature of Head of the  
Institution/Organization with seal Name

Date .....

Designation.....

**Process of submitting the application for P.G. Diploma / M.Tech Degree Programme in WRD&M Department, Indian Institute of Technology - Roorkee (only for foreign candidates)**

1. Eligible candidates must submit their duly filled-in application forms along with all relevant documents to Indian Missions / Embassies in their countries through their employers for admission to Post Graduate Diploma / M. Tech Degree Programmes in Water Resources Development (WRD) / Irrigation Water Management (IWM), for onward transmission to Ministry of External Affairs (MEA), ITEC, Govt. of India, New Delhi.

After receiving the application forms by MEA from the concerned Indian Missions / Embassies these application forms are sent to Department of Water Resources Development & Management (WRD&M), Indian Institute of Technology Roorkee for checking the eligibility of candidates and confirming the admission.

**The application form sent directly to the Department of WRD&M, Indian Institute of Technology Roorkee (India) shall NOT be entertained.**

2. Candidates are required to submit the following through e-mail “wrdtc@iitr.ac.in” to the Department of WRDM while applying to Indian Missions / Embassies in their countries.

- (a) Duly filled Proforma given Appendix -V of the Information Brochure
- (b) Scanned copies of all academic qualifications beginning from High School / Secondary mentioning clearly the percentage of marks / SGPA/CGPA or any other equivalent grade.

**Note: The absolute % marks or equivalent must not be less than 60%. Please attach a copy of equivalence criteria.**

- (c) Experience certificate(s). Note: The total experience at all levels must NOT be less than 02 years upto 15 June of the academic year

APPENDIX – V

**PROFORMA FOR CHECKING ELIGIBILITY OF FOREIGN CANDIDATES ONLY**  
 (to be e-mailed to [wrtdc@iitr.ac.in](mailto:wrtdc@iitr.ac.in) along with all related documents  
 while applying to Indian Embassy / Mission in their countries)

1. Name of Candidate:.....

2. Educational Qualifications:

College/ Institution	Examination Passed	Year of Passing	% marks/Grade Point Average	Position / Distinction
	High School/Secondary			
	Intermediate/Higher Secondary			

3. Name of University/ Institute awarding Bachelor of Science/ Engg./Technology or any other equivalent Degree

.....

4. Branch of Science/ Engg./Tech.: Civil / Elect./ Mech./ Agriculture or its equivalent

Details of Marks/Grade Secured: please attach Proof  
 (Note :leave the column blank if not applicable.)

Year	Semester	Marks %	Range of % Marks	Grade		Total /Average/ SGPA
				Letter	Figure	
I						
II						
III						
IV						
V						
VI						
VII						
VIII						
<b>Total / Average / CGPA</b>						

5. Employment Record and Experience: Please attach proof

Name of Department	Position Held	Period		Details of work done
		From (Exact Date) dd:mm:yy	To (Exact Date) dd:mm:yy	

(Candidate's Signature)

APPENDIX – VI

**ESTIMATE OF EXPENSES**  
 (For sponsored candidates only)

Approximate expenses under different heads are indicated below:

S.N	Particulars of Expenditure	Indian Officers	Foreign Officers on Fellowship from ITEC
<b>For I<sup>st</sup> and II<sup>nd</sup> Semester Training / P.G. Diploma / Master of Technology (First Year) 52 Weeks</b>			
1.	Institute Fee*	Rs. 70,500	Rs. 70,500 (In Indian Rs.)
2.	Lodging & Electricity charges**	-	Rs. 35,460
3.	Books and stationery**	-	Rs. 5,000.00
4.	Study Tour and visits to projects	Rs. 6,300	Rs. 6,300.00
5.	Pick Up and Drop From Airport Expenses		Rs. 7,560
	<b>Sub Total</b>	<b>Rs. 76,800</b>	<b>Rs. 1,24,820 Institute fee as applicable</b>
<b>For III<sup>rd</sup> and IV<sup>th</sup> Semester Master of Technology (Second Year)</b>			
6.	Institute Fee	Rs. 62,500	Rs. 62,500 (In Indian Rs.)
7.	Lodging and electricity charges**	-	Rs. 35,460
8.	Study tour and visits to project	6300	Rs. 6,300
	<b>Sub Total</b>	<b>Rs. 68,800</b>	<b>Rs. 1,04,260 Institute fee as applicable</b>
	<b>Grand Total</b>	<b>Rs.1,45,600</b>	<b>Rs. 2,29,080 Institute fee as applicable</b>
<p>* Revision of <b>Institute fee</b> is under active consideration by the administration. The Institute fee includes: tuition, examination, enrolment, medical, internet, computer, extra curricular activity, and admission, grade card, student welfare, modernization, identity card, benevolent, alumni and library etc.</p> <p>** As per terms &amp; conditions of sponsoring agency.</p> <p><b>Note:</b> 1. Charges are to be deposited at the time of Registration in respective Semesters through a Demand Draft in favour of Chairman, P.G. Admission IIT Roorkee payable at any Nationalized Bank at Roorkee.</p> <p>2. In addition to above the boarding charges have to be borne by students/trainee officers themselves.</p> <p>3. Charges at Sl. No. 2 &amp; 7 are for ITEC sponsored candidates/TCS sponsored candidates</p>			

## VISION

To be the fountainhead of new ideas and innovations in science and technology and continue to be a source of pride for all Indians.

## MISSION

To create an environment that shall foster the growth of intellectually capable, innovative and entrepreneurial professionals, who shall contribute to the growth of Science and Technology in partnership with industry and develop and harness it for the welfare of the nation and mankind.

## कुल गीत

जयति जयति विद्या संस्थान,  
हिम गिरि शृंगों से अभिनदित,  
गंगा जल करते कल गान। जयति ॥

शिक्षा आदर्शों में उन्नत,  
जीवन शिल्पी भू रचना रत,  
'श्रम बिना न किमपि साध्यम्' ब्रत,  
यन्त्र कला कौशल अभियान। जयति ॥

जन जीवन प्रासाद उठाकर,  
सेतु बांध भू खण्ड जुड़ाकर,  
अंतरिक्ष में यान उड़ाकर,  
नव युग को देता आहवान। जयति ॥

सृजन हित जीवन नित अर्पित,  
धरा स्वर्ग शोभा कर निर्मित,  
वैज्ञानिक युग पट में मूर्तित,  
भू पर लाता स्वर्ण विहान। जयति ॥

नयी प्रेरणा से दीपित मन,  
नव स्वर्जों से हर्षित लोचन,  
नए सत्य की उर में धड़कन,  
ध्येय राष्ट्र जीवन कल्याण। जयति ॥

( रचयिता – श्री सुमित्रानन्दन पन्त )

## CORE VALUES

- ❖ Academic integrity and accountability
- ❖ Respect and tolerance for the views of every individual
- ❖ Attention to issues of national relevance as well as of global concern
- ❖ Holistic understanding, including knowledge of human sciences
- ❖ Appreciation of intellectual excellence and creativity
- ❖ An unfettered spirit of learning explorations, rationality and enterprise
- ❖ Sensitivity to social responsibilities