



DEPARTMENT OF IRRIGATION AND DRAINAGE ENGINEERING



COLLEGE OF AGRICULTURAL ENGINEERING AND TECHNOLOGY
JUNAGADH AGRICULTURAL UNIVERSITY, JUNAGADH



BRIEF HISTORY



Department of
Irrigation & Drainage Engineering



Established since
2017-18



M Tech. (Agril. Engg.) in the disciplines of
Irrigation and Drainage Engineering (IDE)



Started since
2022-23



OBJECTIVES :



1. To provide comprehensive education and practical training in modern irrigation and drainage engineering technologies to undergraduate, master and Ph.D. students, developing skilled and qualified professionals in the field of irrigation and drainage engineering.



2. To conduct region-specific research and develop innovative, sustainable irrigation and drainage technologies for farmers and policymakers, utilizing modern techniques and concepts such as irrigation automation to enhance water use efficiency, improve soil quality through drainage, and increase agricultural productivity in Gujarat.



3. To impart training to rural youth, farmers, farm women, line departments, and NGOs, promoting the adoption of modern technologies related to irrigation and drainage engineering.



4. To collaborate with farmer's groups, FPOs and industry partners for the practical application of research innovations, ensuring continuous improvement and adaptation of irrigation and drainage technologies in Gujarat state.



STAFF POSITION

A FACULTY STRENGTH

Sr No.	Name & Designation	Qualification	Speciali- zation	Contacts
1	Dr. G. V. Prajapati, Professor & Head	Ph. D. (Agril. Engg.)	SWE	☎ 099093 61030 (M) ✉ prajapati_girish@jau.in
2	Dr. R. J. Patel Associate Professor (AICRP-IWM)	Ph. D. (Agril. Engg.)	SWE	☎ 098792 03665 (M) ✉ rjpatel@jau.in
3	Dr. P. H. Rank Assistant Professor (AICRP-IWM)	Ph. D. (Agril. Engg.)	SWE	☎ 084010 60807 (M) ✉ prasangrank@jau.in
4	Dr. Bhawana Asnani Assistant Professor	-	-	-

B TECHNICAL / SUPPORTING STAFF

Sr No.	Name & Designation	Qualification	Speciali- zation	Contacts
1	Mr. Y. P. Majithia Agriculture Assistant	B. Sc. (Hons)	Agri.	☎ 089808 07693 ✉ ypmajithiya@jau.in
2	Mr. A. A. Shekh Peon	Peon	-	-



COURSES COVERED IN B.TECH (AGRI. ENGG.) DEGREE PROGRAMME

SN	Name of Course	Course No	Credit	Remarks
1	Irrigation Engineering	IDE-2.4.7	3(2+1)	As per ICAR 5th Dean's committee recommendation
2	Sprinkler and Micro Irrigation System	IDE-2.4.8	2(1+1)	
3	Drainage Engineering	IDE-3.5.7	2(1+1)	
4	Groundwater, Wells & Pumps	IDE-3.6.5	3(2+1)	
5	Fluid Mechanics and Open Channel Hydraulics	IDE3.6	3(2+1)	As per ICAR 6th Dean's committee recommendation
6	Irrigation and Drainage Engineering	IDE5.5	4(3+1)	
7	Groundwater, Wells and Pumps	IDE6.2	3(2+1)	
8	Sprinkler & Micro Irrigation Systems	IDE7.5	2(1+1)	



M. TECH. (AGRI. ENGG.) - IRRIGATION AND DRAINAGE ENGINEERING

[Requirement: 70 Credits]

MAJOR COURSES REQUIREMENT	20 CREDITS	COMMON COURSES REQUIREMENT	05 CREDITS	MINOR COURSES REQUIREMENT	08 CREDITS
MASTER SEMINAR	01 CREDITS	SUPPORTING COURSES REQUIREMENT	06 CREDITS	THESIS RESEARCH	30 CREDITS



MAJOR COURSES (Min. 20 Credits)

Sr. No.	Course Title	Course Code	Credits
1	Design of Surface Irrigation Systems	IDE 501	2+1
2	Design of Farm Drainage Systems	*IDE 502	2+1
3	Command Area Management	IDE 503	2+1
4	Water and Nutrient Management Under Protected Cultivation	IDE 504	2+1
5	Design of Drip and Sprinkler Irrigation Systems	*IDE 505	2+1
6	Ground Water Engineering	*IDE 506	2+1
7	Remote Sensing and GIS for Land and Water Resource Management	IDE 507	2+1
8	Waste Water Management and Utilization in Agriculture	IDE 508	2+1
9	Water Conveyance and Distribution	IDE 509	2+1
10	Minor Irrigation	IDE 510	2+1
11	Design of Pumps for Irrigation and Drainage	IDE 511	2+0
12	Crop Environmental Engineering	IDE 512	2+0
13	Water Resources Systems Engineering	IDE 513	2+1
14	Irrigation Economics, Planning and Management	IDE 514	2+0
15	Sensing and Automation in Irrigation Systems	IDE 515	3+0
* Compulsory course		Total	31+11

Ph. D. DOCTORAL PROGRAMME

[Requirement: 100 Credits]

MAJOR COURSES	DOCTORAL SEMINAR-I (MAJOR FIELD)	MINOR COURSES	DOCTORAL SEMINAR-II (MINOR FIELD)	SUPPORTING COURSES	THESIS RESEARCH
12 CREDITS	01 CREDIT	06 CREDITS	01 CREDIT	05 CREDITS	75 CREDITS



MAJOR COURSES (Requirement: 12 Credits)

for Ph. D. Programme

Sr. No.	Course Title	Course Code	Credits
1	Recent Developments in Irrigation Engineering	*IDE 601	2+1
2	Advances in Drainage Engineering	*IDE 602	2+1
3	Hydro-Mechanics and Ground Water Modeling	IDE 603	3+0
4	Soil-Water-Plant-Atmospheric Modeling	IDE 604	2+1
5	Plant Growth Modeling and Simulation	IDE 605	2+0
6	Multi Criteria Decision Making System	IDE 606	2+0
*Compulsory course		Total	13+3

INFRASTRUCTURE FACILITIES

Facilities	Size	Nos.
Office/Room for HoD with computer, printer and required peripherals	6.10 m x 5.60 m	01
PA Steno Office/Room with computer, printer and required peripherals	5.60 m x 3.10 m	01
Administrative Office/Room	5.60 m x 3.10 m	01
Office/Chamber/Room separate for each faculty/staff with computer, printer and required peripherals.	5.60 m x 3.10 m	09
Department Library	7.50 m x 5.60 m	01
Laboratories in Department	Given Lab list	08
Field Laboratory	Given Lab list	02

M. TECH. (AGRI. ENGG.) STUDENTS' RESEARCH OUTCOMES FROM IRRIGATION AND DRAINAGE ENGINEERING DEPARTMENT

SN	Title of Thesis	Name of Student	Name of Guide	Month/Year of submission
M Tech (Agril. Engg.)–Soil and Water Engineering Thesis				
1	Techno-economic evaluation of solar pump using surface and subsurface drip fertigation in brinjal (<i>Solanum melongena</i> L.) crop	Gevariya siddharth atulkumar	H D Rank	Oct.-2020
2	Hydraulic Performance Evaluation of Rain Pipe Irrigation System Under Solar Pump	Kathirya Gaurav Rameshbhai	G V Prajapati	Nov.-2020
3	Protected Cultivation of Cauliflower in off-season	Dobariya Sagar Arvindbhai	R M Satasiya	Dec.-2020
4	Assessment of groundwater resources of uben river basin using MODFLOW	Tank Dhara Prabhudasbhai	P B Vekariya	Feb.-2021
5	Development of Automatic Ring Infiltrometer	Kardani Hiralben Mukeshbhai	H.H. Mashru	Feb.-2021
6	Crop Monitoring and Yield Estimation Using Near Surface Remote Sensing	Khade Patilba Ramdas	H.V. Parmar	Sept.-2021
7	Development of a Computer Based Closed-End Border Irrigation System Design for Small and Medium Farm Holdings	Zalavadiya Umangkumar Bharatbhai	H.R. Vadar	Sept.-2021
8	Mapping of Groundwater Recharge Potential Zones of Ozat River Basin	Rakshit Nileshkumar Vasoya	P.B. Vekariya	Oct.-2021
9	Assessment of Flood Risk Vulnerability of Vishwamitri River Basin Using Remote Sensing and GIS	Patel Charmiben Atulkumar	V.K. Sardhara	April-2022
10	Identification of Groundwater Recharge Potential Zones of Bhadar River Basin	Namrata Sankhla	P.B. Vekariya	Oct.-2022
11	Assessment and Mapping of Soil Salinity Using Remote Sensing and GIS for Mangrol-Una Coastal Belt	Kaivalya Bhandwalkar	G.V. Prajapati	Dec.-2023
12	Demarcation of Potential Groundwater Recharge Zones of Aji River Basin	Akansa Ghritesh	P.B. Vekariya	Jan.-2024
13	Mapping and Modelling of Soil Salinity Using Remote Sensing and GIS in Area of Porbandar District	Desai Naimish Mansukhbhai	K.C. Patel	April-2024
14	Soil Erosion Vulnerability Mapping of the Ozat River Basin Using Remote Sensing and GIS	Dhodia Jugnuben Bhikhubhai	H.H. Mashru	Aug.-2024
15	Analysis of Meteorological Drought Characteristics Based on Climate Change	Vigneshwari R.	K.C. Patel	Aug.-2024
16	Development of Low Cost Soil Moisture Sensor and Smart Irrigation Controller	Bagada Pravin J	R J Patel	Oct.-2024
17	Estimation of Runoff Potential of Gujarat State Using Remote Sensing and GIS	Anjali Yadav	P.B. Vekariya	Nov.-2024



CLASSROOM/SEMINAR HALL

Sr. No	Classroom	Seating capacity	Other facilities
1	Seminar Hall	60	- Display system-1 - Plasma Screen-1 - Computer-1 - Furniture
2	Classroom	60	- LCD Projector-1 - Computer-1 - Furniture



MAJOR LABORATORIES

SN	Name of laboratory	Area (m x m)	Working capacity
1	Irrigation Systems Laboratory	15.80 X 7.60	50
2	Pump Testing Laboratory	12.35 X 7.60	50
3	Wells and Pumps Engineering Laboratory	12.20 x 7.50	50
4	Fluid Mechanics Laboratory	12.20 x 9.10	50
5	Soil Mechanics Laboratory	12.20 x 7.50	50
6	Drainage laboratory	7.75 m x 8.30 m	50
7	Water Quality analysis Laboratory,	12.20 x 7.60	50
8	Incubation center on advanced irrigation technologies	17.20 m x 8.30m	100
9	High Tech MIS Park	25.0 m x 20.0 m	50
10	Hydraulic park	34.50 x 32.0	50



COMPLETED RESEARCH PROJECTS

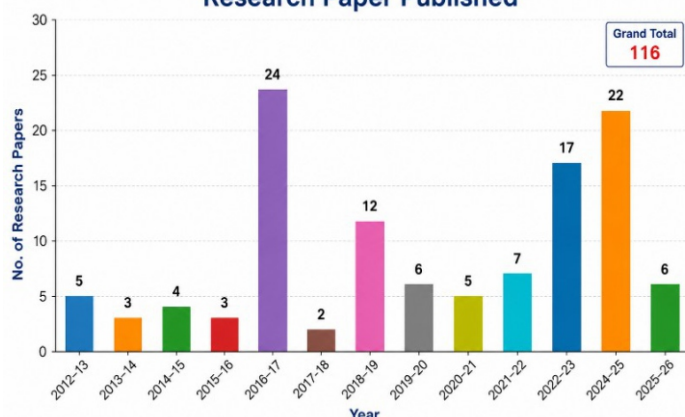
Sr No	Name of the scheme	Starting Year
1	Studies on techno economic feasibilities of drip irrigation for summer groundnut crop and its comparison with sprinkler and border irrigation (B. H. 2084-3)	1997-2002
2	Demonstration cum research center for petroleum conservation	1998-1999
3	Development of models for water management in groundnut based cropping systems (B.H. 2044-8)	1999-2003
4	Determination of the relationship between root and plant, soil properties and the discharge for the optimal design and operation of drip irrigation system, (B. H. 2044-9)	1999-2003
5	Smart Farming for Increasing Agricultural Production in Sodic Soils of Coastal Area of Saurashtra. Rashtriya Krushi Vikas Yojana (RKVY)	2010-2014
6	Modeling Water and Energy Fluxes Over Forested System (B.H.18246-96)	2015-2017
7	River Flow Simulations Integrating Satellite Data in Forested Catchment (B.H.18246-91)	2017-2022
8	Modeling of water fluxes and ground water discharge using 1D- 2D coupled model and in situ measurements in the Gir forest catchment (B.H. 18126-25)	2021-2024



ONGOING PROJECTS/SCHEMES

SN	Name of the Project / Scheme	Starting Year
1	All India Coordinated Research Project (AICRP) on Groundwater Utilization, now renamed as AICRP on Irrigation Water Management (IWM) since 2013. AICRP on IWM, Junagadh Agricultural University, and Junagadh centre is conducting research on different aspects of groundwater potential, recharge, quality assessment and its efficient utilization in Saurashtra region of Gujarat. The head quarter of the project is ICAR-Indian Institute of Water Management, ICAR, Bhubaneswar (Odisha).	2004-05

Research Paper Published





APPRECIATION AWARDS / FELLOWSHIPS / MEDALS RECEIVED BY THE FACULTY

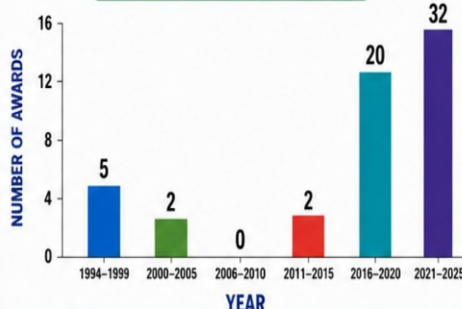
SUMMARY OF ACHIEVEMENTS


TOTAL AWARDS /
FELLOWSHIPS / MEDALS
61


FACULTY
MEMBERS
4


PERIOD COVERED
1994-2025

AWARDS OVER THE YEARS



BY TYPE OF RECOGNITION



LINKAGES WITH VARIOUS INSTITUTES / ORGANIZATIONS

SN	Linkages with	Total firms linked
1	International Institutes	11
2	ICAR Institutes	20
3	National Institutes	15
4	State Universities	12
5	State Level Departments / Agencies	26
6	Others (Industries NGOs)	14
TOTAL		98



Glimpses



Contact

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