

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/3
Branch	CIVIL ENGINEERING			Semester	5 <sup>th</sup>
Course Code		Course Name	Irrigation Engineering		
<b>Course Outcome 1</b>	<b>Explain Hydrology, its parameter and their estimation.</b>			<b>Teach Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Describe hydrological cycle and measure rainfall with the help of rain gauges..</b>			<b>06</b>	<b>08</b>
<b>Contents</b>	Hydrological cycle , types of precipitation, measurement of rainfall, automatic and non – automatic rain gauges , methods of estimating average rainfall, simple numerical problems				
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test				
<b>Learning Outcome 2</b>	<b>Explain Runoff, its calculation and concept of water conservation techniques.</b>			<b>07</b>	<b>10</b>
<b>Contents</b>	Runoff, factors affecting runoff, catchment area and its characteristics, calculation of runoff , rainfall and runoff relationship, hydrograph and unit hydrograph, water shed management and rain water harvesting methods				
<b>Method of Assessment</b>	Internal Theory Exam – Mid Semester Test I				
<b>Course Outcome 2</b>	<b>Explain Irrigation and water requirements of crops.</b>			<b>Teach Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Describe necessity of Irrigation, ill effects of over irrigation and methods of irrigation.</b>			<b>04</b>	<b>05</b>
<b>Contents</b>	Definition and necessity of irrigation, benefits of irrigation, possible ill effects of over irrigation ,types of irrigation, sources of irrigation water, methods of irrigation				
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test				
<b>Learning Outcome 2</b>	<b>Explain the terms delta, duty, base period and establish relation between them.</b>			<b>07</b>	<b>10</b>
<b>Contents</b>	Cropping seasons and crops in Madhya Pradesh and their water requirement, definition -crop period, base period, duty, delta, factors affecting duty, relationship between duty, delta and base period, available moisture and consumptive use, depth and frequency of irrigation with simple numerical problems				
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test				
<b>Learning Outcome 3</b>	<b>Calculate water requirement of crops and capacity of canal.</b>			<b>07</b>	<b>10</b>

<b>Contents</b>	Definition: Gross commanded area, cultural commanded area,,intensity of irrigation,time factor, capacity factor, kor – period, kor – depth, Paleo irrigation, outlet factor, crop ratio, cumec day, Root zone depth, crop rotation, simple problems on water requirement of crops and capacity of canal		
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test		
<b>Course Outcome 3</b>	<b>Explain investigations for reservoir planning and different types of dams.</b>	<b>Teach Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Discuss the necessity of survey for irrigation structures and determine storage capacity of reservoir.</b>	<b>07</b>	<b>10</b>
<b>Contents</b>	Introduction and types of reservoir, survey for irrigation project, application of GIS in planning reservoir, area capacity curve, zones of storage in reservoir, types of yield, capacity of reservoir, silting of reservoir, rate of silting, factors affecting silting. Method to control silting,		
<b>Method of Assessment</b>	Internal Theory Exam – Mid Semester Test II		
<b>Learning Outcome 2</b>	<b>Explain the components of earthen dams and methods of constructions</b>	<b>05</b>	<b>07</b>
<b>Contents</b>	Types of dams, earthen dams- types, components and their function, typical cross section, methods of construction, types of failure of earthen dams and remedial measures		
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test		
<b>Learning Outcome 3</b>	<b>Describe Gravity dam with its component and spillways.</b>	<b>07</b>	<b>08</b>
<b>Contents</b>	Forces acting on gravity dam, typical cross section, modes of failure of gravity dam (concept only), theoretical and practical profile, high dam and low dam, drainage gallery, joint in gravity dam, Spillways- definition, function, location, component and its types.		
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test		
<b>Course Outcome 4</b>	<b>Explain Diversion head works, weir- barrages and necessity of percolation tanks.</b>	<b>Teach Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Describe diversion head works.</b>	<b>06</b>	<b>08</b>
<b>Contents</b>	Introduction of diversion head works, layout with its components and their function,weirs- components parts, function and types Barrages– components and their function, difference between weir and barrage, canal head regulator, silt excluders and silt ejectors		
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test		

<b>Learning Outcome 2</b>	<b>Explain Bandhara irrigation, Necessity and importance of percolation tanks.</b>	<b>05</b>	<b>05</b>
<b>Contents</b>	Bandhara irrigation layout and component parts, its advantages and disadvantages Percolation tank- Necessity and importance, selection of site, Layout of lift irrigation scheme.		
<b>Method of Assessment</b>	Internal Theory Exam: Assignments/ Seminars/ Presentations		
<b>Course Outcome 5</b>	<b>Explain classification of canals and Water logging problems.</b>	<b>Teach Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Classify different types of canals and explain canal lining .</b>	<b>06</b>	<b>08</b>
<b>Contents</b>	Classification of canals according to alignment and position in the canal network, piped canal system- Definition and use. balancing depth, most economical canal section, cross section of irrigation canal, Canal lining – definition, purpose, types of canal lining, advantages of canal lining properties of good canal lining material		
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test		
<b>Learning Outcome 2</b>	<b>Describe water logging with its preventions.</b>	<b>04</b>	<b>05</b>
<b>Contents</b>	Water logging – its causes ,effects and preventions, Reclamation of waterlogged areas, assessment of irrigation water.		
<b>Method of Assessment</b>	Internal Theory Exam: Assignments/ Seminars/ Presentations		
<b>Learning Outcome 3</b>	<b>Explain different types of cross drainage works.</b>	<b>04</b>	<b>06</b>
<b>Contents</b>	Cross Drainage works - types , canal falls, escapes, cross regulators and canal outlets		
<b>Method of Assessment</b>	External Theory Exam – Pen Paper Test		

### List of Suggested Books: -

<b>S. No.</b>	<b>Authors</b>	<b>Title</b>	<b>Publisher</b>
1.	K. Subramanya	Engineering Hydrology	Tata Mcgraw Hill
2.	Santosh Kumar Garg	Irrigation Engineering and Hydraulic Structures	Khanna Publishers
3.	B.C. Punmia	Irrigation and Water Power Engineering	New Age International
4.	Birdie & Das	Irrigation Engineering	Dhanpat Rai Publications
5.	<u>S.R. Sahasrabudhe</u>	A Textbook of Irrigation Engineering	Katson Books
6.	Gurucharan Singh	Preliminary Irrigation Engineering (Hindi)	Standard Publishers