Department of Civil Engineering

Innovative Teaching Method – Case Study

Name of Faculty – Ms. M. B. Murkute **Class – TE**
Academic Year– 2020-21 **Semester I**

Name of Subject: – Hydrology and Water Resources Engineering

Objectives of Methodology:

1. Students Will able to identify key Points and Issues related to case study
2. Students Will able to do Work in A team with discussion and prepare a report

Details of Activity/Method:

1. Case Study Topics are allocated to students Group wise
2. Students have to Identify different Case Study related to Topic
3. Students have to Choose One case study
4. Students have to prepare Report on Case Study

Assessment Tools & Rubrics: -

DEPARTMENT OF CIVIL ENGINEERING TE CIVIL								
INNOVATIVE TEACHING METHODLOGY :- CASE STUDY								
(2020-2021) SEM I								
Roll No.	Name of Student	Name of Case Study	Use of Time	Use of Pictures	Required Elements	Visual Clarity and Appeal	Content Spelling Grammer and Puctuations	Total (20)
		Marks	4	4	4	4	4	
1	TUSHAR PRAFULLA AHER	Groundwater Monitoring Network (CO3)	2	4	3	3	3	15
2	KULBHUSHAN KAILAS BAGAL		2	4	3	3	3	15
3	RIYA RAJESH BAGUL		2	4	3	3	3	15
4	RUTUJA CHINTARAM BAGUL		2	4	3	3	3	15
5	RAHUL PRAKASH BAISANE	Water management System (CO6)	4	2	2	2	2	12
6	KRUSHNA JALINDRANATH BARE		4	2	2	2	2	12
7	PRATIK SHIVAJI BARKE		4	2	2	2	2	12
8	DEV DINESH BHAMARE		4	2	2	2	2	12
9	KANISHKA SANJAY BHAMARE	Effect of Water Logging (CO6)	4	4	4	4	4	20
10	SHUBHAM RAJENDRA BHAMARE		4	4	4	4	4	20
11	KHUSHBOO DILIP CHANDWANI		4	4	4	4	4	20
12	ADARSH PRADIP CHAUDHARI		4	4	4	4	4	20

13	AVINASH AMBADAS CHAUDHARI	Reclamation Procedure of Water Logging (CO6)	2	2	2	1	1	8
14	SAKSHI PRASHANT CHOPADA		2	2	2	1	1	8
15	HRUTIK SANJAY DEORE		2	2	2	1	1	8
16	ASHWIN KIRAN DHATINGAN		2	2	2	1	1	8
17	PRATIK RAGHUNATH DHATRAK	Drought Management (CO5)	2	4	3	3	3	15
19	ADITYA KISHOR GAIKWAD		2	4	3	3	3	15
20	AJAY BHILA GAIKWAD		2	4	3	3	3	15
21	DIGVIJAY SHRIRAM GAIKWAD		2	4	3	3	3	15
22	SARTHAK SANJAYKUMAR GANGURDE	Flood Control (CO4)	4	4	4	4	4	20
23	SEJAL ASHUTOSH GHOLAP		4	4	4	4	4	20
24	NIKHIL ANNASAHEB GITE		4	4	4	4	4	20
25	KIRAN PUNDLIK JADHAV		4	4	4	4	4	20
26	SHRADDHA TULSHIRAM JADHAV	Reservoir Sedimentation (CO5)	4	4	3	4	3	18
27	SANKET MAHAVIR JAIN		4	4	3	4	3	18
28	PRANJAL DILIP KADLAG		4	4	3	4	3	18
29	PRATHAMESH GANGADHAR KAKAD		4	4	3	4	3	18
30	PRIYA RAJENDRA KAKAD	Drainage system (CO6)	4	3	4	4	3	18
31	ANVAY RAJENDRA KALE		4	3	4	4	3	18
32	SANIKA SHARAD KALE		4	3	4	4	3	18
33	PRATHMESH RAJESH KARANJIKAR		4	3	4	4	3	18
34	PRATIK KIRAN KATAD	Flood Routing (CO5)	4	3	3	3	3	16
35	AMOL SANTOSH KOKANE		4	3	3	3	3	16
36	VAISHNAVI SAMEER KSHATRIYA		4	3	3	3	3	16
37	SANDIP SANJAY KUMAWAT		4	3	3	3	3	16

38	SWAPNIL SURESH LONDHE	Flood Control Methods (CO4)		4	4	4	3	15
39	ANJALI JITENDRA MAHAJAN		4	4	4	4	3	19
40	PRATIK SUBHASH MALI		4	4	4	4	3	19
41	RUSHIKESH RAMDAS MATE		4	4	4	4	3	19
42	GANESH BHARAT MATSAGAR	Case study of Kerala Floods (CO4)	3	3	3	2	3	14
43	MAYANK RUPESH NAHAR		3	3	3	2	3	14
44	DIPALI AJAY NAVALE		3	3	3	2	3	14
45	ROHAN RAMNATH NAVALE		3	3	3	2	3	14
46	AKSHAY ASHOKRAO NAVTAKKE	Watershed Management CO6)	1	3	2	2	2	10
47	PIYUSH RAJENDRA PATAIT		1	3	2	2	2	10
48	ASHUTOSH MADHUKAR PATIL		1	3	2	2	2	10
49	ROHAN VIJAY PATIL		1	3	2	2	2	10
50	RUTUJA KAILAS PATIL	A role of Remote Sensing In Hydrology (CO1)	2	4	3	3	3	15
51	AJINKYA MAHENDRA PAWAR		2	4	3	3	3	15
52	SANKET RAJENDRA PAWAR		2	4	3	3	3	15
53	PRATIM AMOL RAJBHOJ		2	4	3	3	3	15
54	ANISHA SUDAM RAUNDAL	Irrigation and Land use Pattern (CO2)	4	3	3	4	3	17
55	DARSHANA NAGRAJ SAINDANE		4	3	3	4	3	17
56	BHAGYASHRI GOKUL SALUNKE		4	3	3	4	3	17
57	BHAVYA RAKESH SHAH		4	3	3	4	3	17
58	DHRUVIL MANISH SHAH	Cropping Pattern in MaharashtraCO 2)		3	3	3	3	12
59	SHIVANI SUNIL SHINDE		2	3	3	3	3	14
60	KIRTESH MAHENDRA SOMWANSHI		2	3	3	3	3	14
61	MANGESH RAJENDRA SONAR		2	3	3	3	3	14

62	NILESH DILIP SONAWANE	Water Management (CO6)	2	2	2	2	2	10
63	SAMADHAN VISHNU SONAWANE		2	2	2	2	2	10
64	AKANKSHA DNYANESHWAR THAKARE		2	2	2	2	2	10
65	SEJAL RAVSAHEB BAVA		2	2	2	2	2	10
66	PRASAD DEVIDAS MATALE	Watershed Management Case study (CO6)	3	3	3	3	3	15
67	SHUBHAM LAXMAN PATIL		3	3	3	3	3	15
68	NIKHIL SUNIL CHAUDHARI		3	3	3	3	3	15
69	ASHUTOSH SUDHIR DEORE		3	3	3	3	3	15
70	GAURAV SUNIL LOKHANDE	Leaching of Water logging Land (CO6)	2	4	3	3	3	15
72	HRISHIKESH RAJENDRA GANGURDE		2	4	3	3	3	15
73	DIPESH DAYARAM DALVI		2	4	3	3	3	15
74	VISHAL BHAUSAHEB SHETE		2	4	3	3	3	15

Course Outcomes (Related to Methodology)

	After the completion of course students will be able to:	BTL
C301.1	Compute the various parameter of hydrological cycle	3
C301.2	Determine the Crop water requirement	3
C301.3	Evaluate occurrence, distribution and movement of ground water	3
C301.4	Analyze runoff and flood frequency by different methods	3
C301.5	Assess various parameter for reservoir planning and sedimentation	4
C301.6	Extend water management techniques to overcome water logging problems	4

POs (Related to Methodology)

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PSOs (Related to Methodology)

PSO1	Graduates will apply technical knowledge, engineering skills, and competencies necessary for entering civil engineering career
PSO2	Graduates will demonstrate knowledge and techniques in engineering fields for effectivemanagement and professional development.
PSO3	Graduates will apply technical and professional skills to be nationally competitive for employment/ self-employment thereby benefit the society

Evidences: Activity Photographs/Videos/Sample PPT's

A

Case Study Report on

"Flood Control"

TE Civil Engineering

Submitted by

22 SARTHAK SANJAYKUMAR. GANGURDE

23 SEJAL ASHUTOSH GHOLAP

24 NIKHIL ANNASAHEB GITE

25 KIRAN PUNDLIK JADHAV

Guided by

Name of Guide:- Ms. Monika B. Murkute

KBTCOE

DEPARTMENT OF CIVIL ENGINEERING

Maratha Vidya Prasarak Samaj's

KARMAVEER ADV. BABURAO GANPATRAO THAKARE

COLLEGE OF ENGINEERING,NASHIK-13

SAVITRIBAI PHULE PUNE UNIVERSITY

(2020-2021)

INDEX

1. ABSTRACT:

In this case study, The effectiveness of a flood defense project based on storage reservoirs, for the Magra River and Vara River (Italy) is investigated. The case study focuses on the analysis on two detention reservoirs and studied their response to different hydrological scenarios mostly in terms of flood mitigation efficiency, leaving aside sediment transport issues. The analysis has been carried out with the aid of a physical model and one-dimensional numerical simulations. Experimental and numerical simulations have been performed spanning a wide range of hydrological conditions. Some of the results can be generalized for different applications where similar flood control systems are employed.

2. INTRODUCTION:

Water management measures are closely linked to a variety of needs within human society. If on one hand, they have to improve the water utilization for different purposes. On the other hand, they must also provide a protection against the possible destructive effects, e.g., during a flood event.

- Flood control projects are of crucial importance in preserving lands from the occurrence of natural disasters caused by river floods. A great variety of flood control measures are available that can be generally classified as structural projects, which rely on different kinds of hydraulic structures and nonstructural projects. Among the structural measures, detention reservoirs have proven to be effective in reducing downstream flooding risk. Reservoirs are designed to temporarily store floodwater behind dams or in- side detention basins. In the present paper, we investigate the effectiveness of a flood mitigation project based on storage reser- voirs to be built on the Vara River (Italy). The Vara River is the main tributary of the Magra River, which has a basin of about 1 , 698 km^2 and is confined between the basin of the Po River (North) and the Tyrrhenian Sea (South), crossing the Tuscany and Liguria regions. The Vara basin has a watershed of about 600 km^2, with average annual rainfall of about 1,770 mm/y and an estimated average inflow of about 570×10^6 m^3 per year. The purpose of river training is primarily to control floods with a particular attention being given to the protection of floodplains and human settlements (Wu et al. 2005). Starting from the identification of vulnerable

regions in the basin, the actions consid- ered in the mentioned plan are mainly aimed to regulate the floodwater and to control the sediment conveyance along the en- tire river. The feasibility of a system of relatively small volume floodwater reservoirs distributed on the entire basin, taking ad- vantage of the limited natural floodplains, has been studied. The number of the reservoirs distributed on the entire network should be 29 for an available total volume of about 20×10^6 m^3, for a corresponding cost estimated to be about 110 million euro. In the present work, we have studied in detail a system of two floodwater storage reservoirs located in the upper part of the Vara River. In this case study, our group

- Evaluate the flood mitigation effects produced by the flood control measures;
- Compare the performance of different configurations of the flood control systems;
- Investigate the response of a system of multiple detention basins to different hypothetical floods with a wide range of occurrence periods, eventually suggesting a simple relationship to estimate the global flood attenuation efficiency;
- Produce a rating curve appropriate to describe the hydraulic behavior of the designed dam, which might be generalized to other dams of the same kind but with different geometrical characteristics; and
- Formulate a 1D numerical model capable to describe the un- steady dynamics of the flood propagation and attenuation produced by the presence of the detention basins.

3. STUDY AREA AND IMPOUNDING STRUCTURES

The river reach under consideration extends for about 7 km in the Apennines region of its basin, close to a small village (S. Pietro Vara), see Fig. 1. The river reach is mainly single threaded and no important embankments or other river training structures (bend and bank protections) are present. Along this reach, two locations have been identified as possible sites for floodwater storage. The first, herein labeled VARA1, is placed upstream of the village, extending for 1 km with an available storage volume of about 3.7×10^5 m^3. The second, herein labeled VARA2, is located just downstream S. Pietro Vara, is characterized by a greater available volume, i.e., 7×10^5 m^3. An aerial image of the river reach is shown in Fig. 2, with the location of the detention reservoirs depicted in white. Between the two systems, four minor and three major tributaries are present and their contribution to the main channel discharge has been taken into account for the numerical simulations.

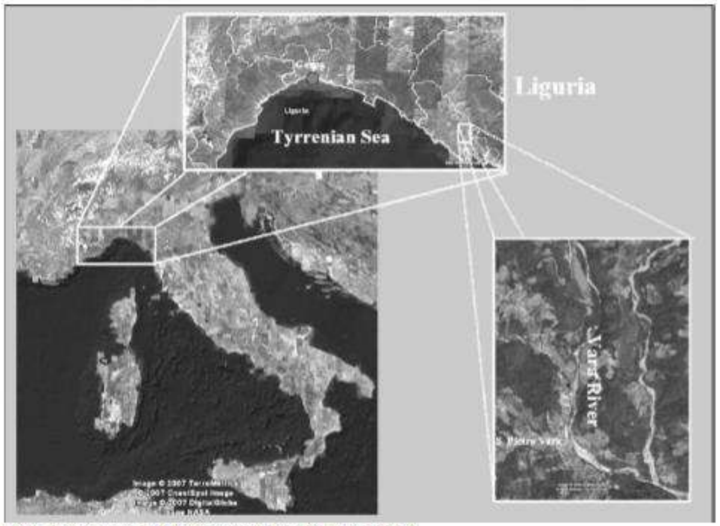


Fig.1. Study area and its location[Aerial photograph]

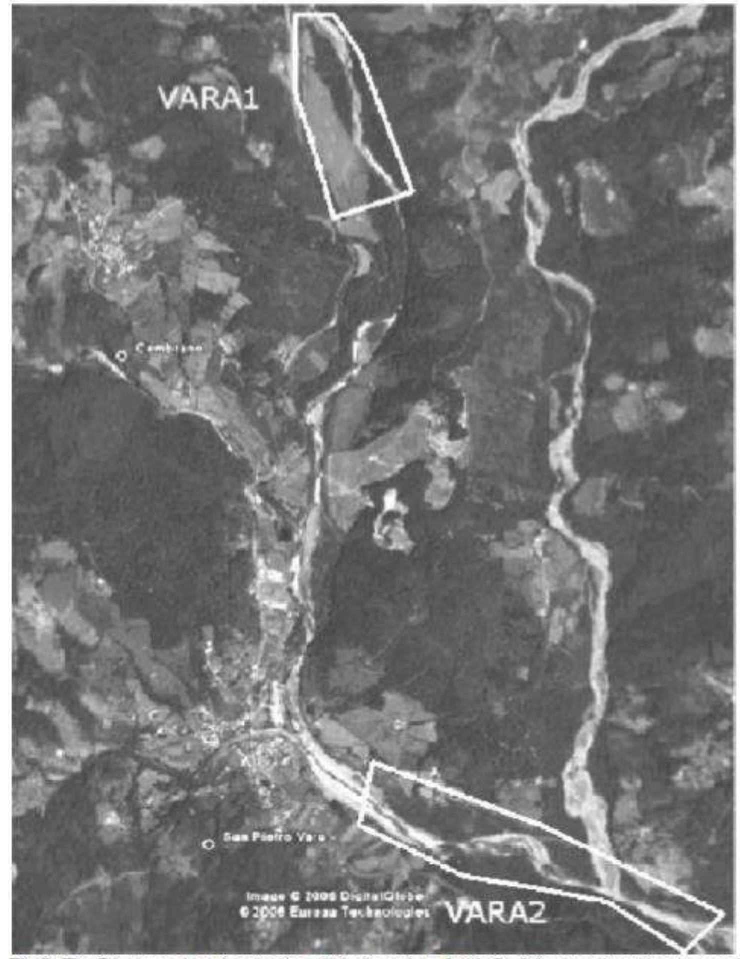


Fig.2. The River reach under study and the boundary [white] of the two detention reservoirs [Arial photograph]

In the present study, two different configurations of the flood defense systems are considered: the first configuration, denoted as "L1," consists of a rock-earth-fill dam with a bottom gate and a top spillway; the second configuration, denoted as "M1," consists of the same dam together with a longitudinal embankment, which has a lateral spillway near the dam (see Fig. 3). A sketch of the main geometrical characteristics of the transverse and lateral structures is shown in Fig. 4 and the geometrical characteristics of the dams are given in Table 1.

The main design parameters considered can be summarized as follows: (1) a design discharge Q_D, which is related to a certain return period T_R that depends on the hydrologic characteristics of the basin, in the present case $T_R = 30$ years; (2) the maximum acceptable free surface elevation in the case of occurrence of an extreme event in the present case $T_R = 200$ years-which is necessarily related to the available volume; (3) the minimum discharge for which the system starts to interact significantly with the flow. The main output of the preliminary design will be the determination of the flood attenuation defined as

$$\varepsilon = \frac{Q_{IN} - Q_{OUT}}{Q_{IN}} \qquad (1)$$

where Q_{IN}= peak of the entering hydrograph and Q_{OUT}= maximum discharge that flows through the dam. In other words, it indicates the amount of reduction of the peak of the incoming hydrograph. A correct rating curve describing the hydraulic response of the transverse structure is necessary in order to accomplish the preliminary design described above. For this reason in the present study the determination of the rating curve of the dam was the first step of our experiments.

Detailed data have been collected at the beginning of the study. In particular, a topographic survey was carried out in the region of interest. Moreover, during a field trip along the river reach, armor samples were collected in order to estimate the sur- face roughness (Parker 1990), employing the statistical sampling called pebble counts (Bunte and Abt 2001).

Finally, hydrographs for different return periods, ranging from 5 to 200 years, were provided by the Authority for the river reach entering the VARA1 reservoir. The corresponding peak discharges range from 159 to 815 m^3/s.

4. PHYSICAL MODEL AND MEASUREMENTS

The present physical model has been designed preserving the Froude number of the prototype, imposing a geometrical scale of 1:62.5. The river reach under investigation is about 1-km-long and the area of the river-basin bounded by the contour line corresponding to a value of 325 m above mean sea level (AMSL) is about 0.2 km^2. Therefore, the physical model is about 16-m-long and 6-m-wide. A schematic representation of the model is shown in Fig. 3. In the same figure, the contour lines representing the orography and the floodplain are clearly visible, whereas in the main channel the cross sections are reported as straight lines. Using similitude based on the Froude number implies that the resistance in the model follows a prescribed scale. In particular, the dimensional analysis suggests that the coefficient of resistance must be smaller in the model. Thus, a thin layer of sand with an appropriate grain size has been glued on top of the modeled main channel in order to reproduce the correct prototype coefficient of resistance. Moreover, a long narrow area next to the river reach is sparsely wooded in the prototype, visible also from the aerial photograph of Fig. 1. The effect of the latter has been accounted for by reproducing an equivalent flow resistance for the case of vegetated channels, evaluated following Righetti et al. (2004). We have then obtained a corresponding value for the Chézy coefficient C and a resulting diameter of sand able to produce the required resistance. The physical model was equipped with a hydraulic system able to reproduce the required time-dependent discharges. Flow control was obtained through a butterfly valve connected to a modulating actuator, which could be remote controlled. Finally, we have performed the following measurements: the model flow rate was measured using an orifice-plate flow meter with a pressure gauge; free surface elevation was measured using ultrasonic probes. The measurements have been synchronized through a data acquisition system in order to correlate the free surface level with the flowing discharge for the entire run. All the signals were simultaneously sampled, digitized with a 16-bit converter and continuously recorded on a computer. Signal prefiltering was provided in order to prevent measurement and digitalization errors.

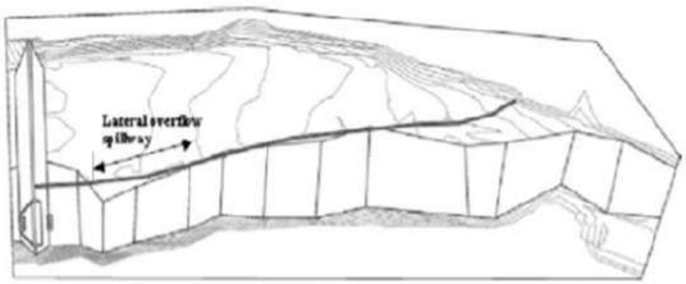


Fig. 3. Plan view of VARAI flood water reservoir with lateral overflow spilway

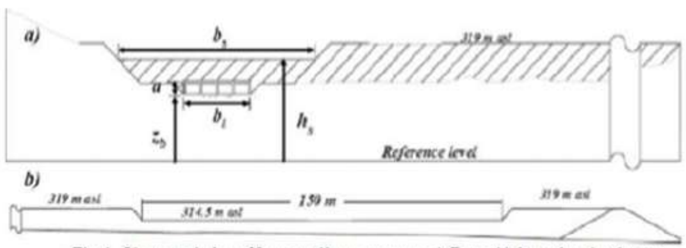


Fig.4. Characteristics of Impounding structures a) Dam; b) lateral embankment

Initially, when the storage area is empty, the behavior of the lateral weir can be described by a broad-crested weir model, in which the overflow discharge *ql(f)* depends exclusively on the water surface level in the main channel (free overflow). When the water level in the floodplain achieves the weir crest elevation, the two levels *hm* and *hf* begin to interact ultimately decreasing the overflow discharge *ql(s)*: i.e., the overflow is submerged. The discharge that fills the storage area decreases and can be determined from the overflow depth, measured from the crest elevation (*Y0*)and from the tailwater depth (*Yt*), measured positively upwards from the weir crest (see Fig. 5). During the falling limb of the flood wave, direction of flow reverts, moving water from the storage area to the main channel. When the water surface level in the storage area reaches the weir crest, the overflow ends.

5. SUBMERGED FLOW CASE:

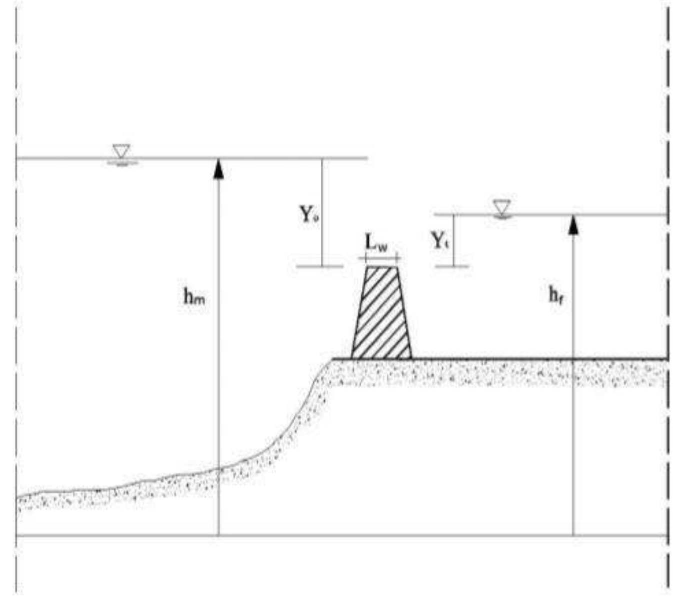


Fig.5. Submerged flow case

The spillway law governing the lateral discharge has been defined as follows:

• **Free overflow**

The lateral discharge per unit width *ql(f)*is given by

$$q_{l(f)} = C_d(2gY_0^3)^{1/2}$$

where the discharge coefficient *Cd* was chosen as 0.385.

• Submerged overflow

For submerged overflow, $ql(s)$ is obtained by reducing the lateral discharge $ql(f)$. The relationship between $ql(s)$ and $ql(f)$is given by

$$q_{l(s)} = \psi q_{l(f)}$$

where the reduction coefficient depends exclusively on the submergence ratio Sr, which reads

$$S_r = \frac{Y_t}{Y_0}$$

6. CONCLUSIONS AND FUTURE DEVELOPMENTS

The hydraulic design of a system of two flood control detention reservoirs has been investigated in detail through both experimental runs on a physical model and 1D numerical simulations. From the analysis of the results obtained for the specific case study presented some general conclusions can be drawn, which can be briefly summarized as follows:

• A rating curve able to describe a composite hydraulic behavior of a structures of the kind as the one designed for the present dam has been derived and tested experimentally; the proposed formulation eventually depends only on the geometrical characteristics of the dam itself (sluice gate and spillway);

• The 1D numerical model fit the experimental measurements, provided that correct boundary conditions are imposed; the agreement between the numerical predictions and the experimental observations is fairly good during the entire propagation of the flood;

• If correctly designed, a system of relatively small detention reservoirs distributed inside the watershed of the main river and its tributaries is able to produce a reasonable flood mitigation, such that their construction is justifiable; in this regard, it is fundamental to analyze a wide range of return periods in order to assess the response of the flood control measure to different hydrological scenarios; and

• A simple relationship for the flood attenuation efficiency has been proposed for a system of reservoirs, which might be used in order to estimate the response of the entire system based on the knowledge of the performance of the single flood control system. Future investigations will regard the impact of flood defense measures as the ones studied on the natural balance of

sediment and water quality. In particular, sediment deposition is likely to occur behind the dam (see the example given in) Siviglia et al. (2008) producing a decrease, in the long run, of the storage capacity and an abrupt disconnection for the natural sediment conveyance.

For the above reason, experimental and numerical tests including the sediment transport have been planned to be performed on the physical model and using a morphological numerical model, with the aim of investigating all the aforementioned scenarios.

REFERENCES:

1. Annunziato Siviglia, Alessandro Stocchino and Marco Colombini, "Case Study: Design of Flood Control Systems on the Vara River by Numerical and Physical Modeling", *Journal of Hydraulic Engineering*, pp. 1063 – 1072, December 2009.

2. Christian Reszler, Günter Blöschl, Jürgen Komma and Dieter Gutknecht, "Reservoir Operation – An Optimisation Model For Flood Management", *International Commission On Large Dams* (Symposium:Operation, Rehabilitation and Up-grading of Dam), 76th Annual Meeting, Sofia, Bulgaria, June 2-6, 2008.

3. Chao Zhou, Na Sun, Lu Chen, Yi Ding, Jianzhong Zhou, Gang Zha, Guanglei Luo, Ling Dai and Xin Yang, "Optimal Operation of Cascade Reservoirs for Flood Control of Multiple Areas Downstream: A Case Study in the Upper Yangtze River Basin", *Water* 2018, Vol. 10, 1250.

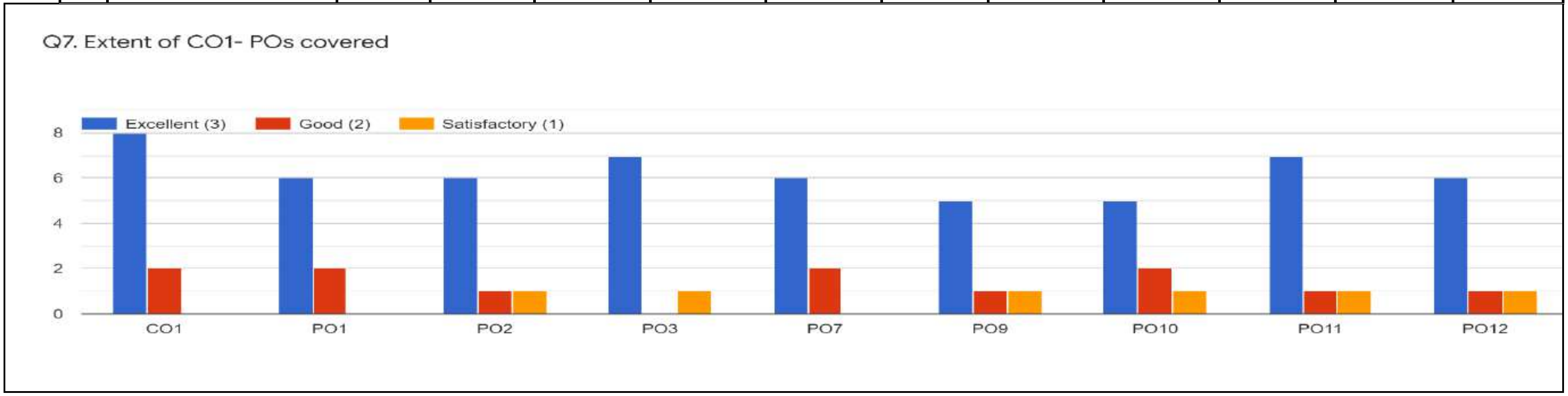
Feedback/Impact Analysis (Based on Students Feedback):

Course Outcome

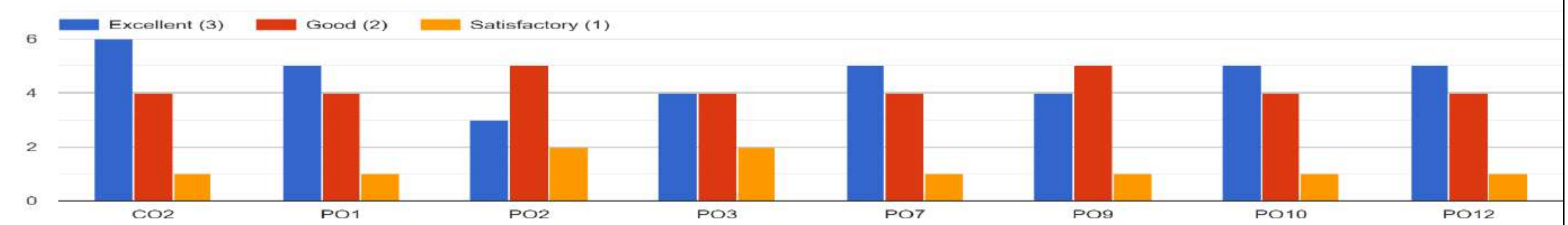
	Course Outcome	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
A	No. of Groups/Students Achieving CO	4	8	4	12	11	30
B	Total Rating	11	19	12	35	31	84
C	Average Rating (B/A)	2.75	2.375	3.00	2.92	2.82	2.8

Program Outcome

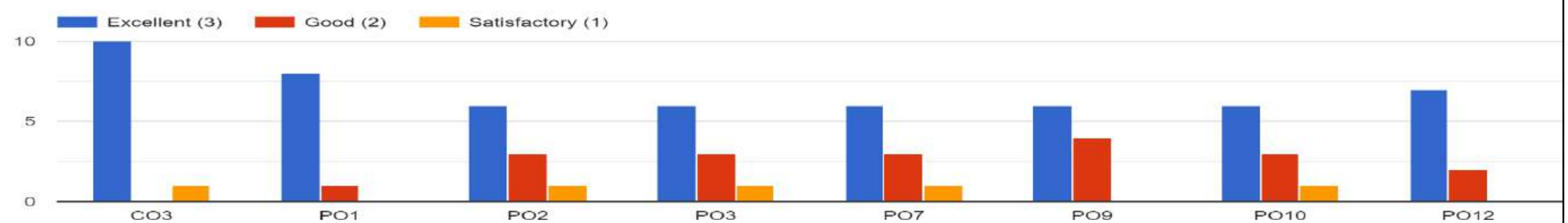
	Program Outcome	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO9**	**PO10**	**PO11**	**PO12**
A	No. of Groups/Students Achieving PO	69	69	69	23	11	53	69	69	69	4	69
B	Total Rating	188	183	186	61	30	147	190	189	187	12	184
C	Average Rating (B/A)	2.71	2.66	2.68	2.66	2.73	2.79	2.76	2.70	2.71	3.00	2.65



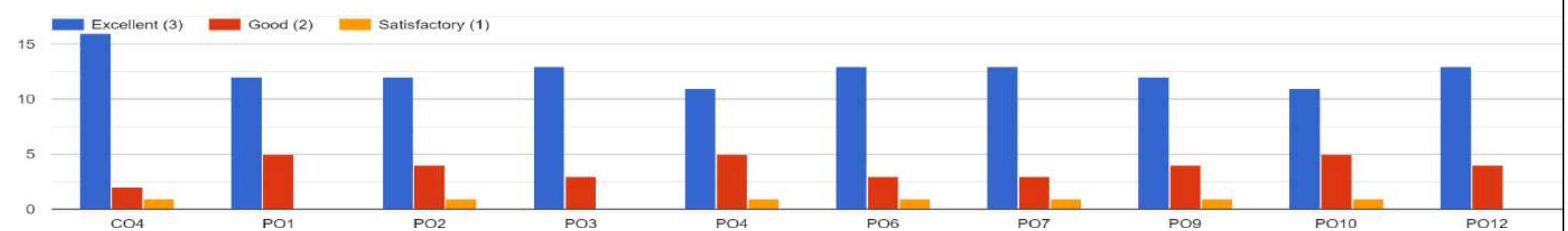
Q8. Extent of CO2- POs covered

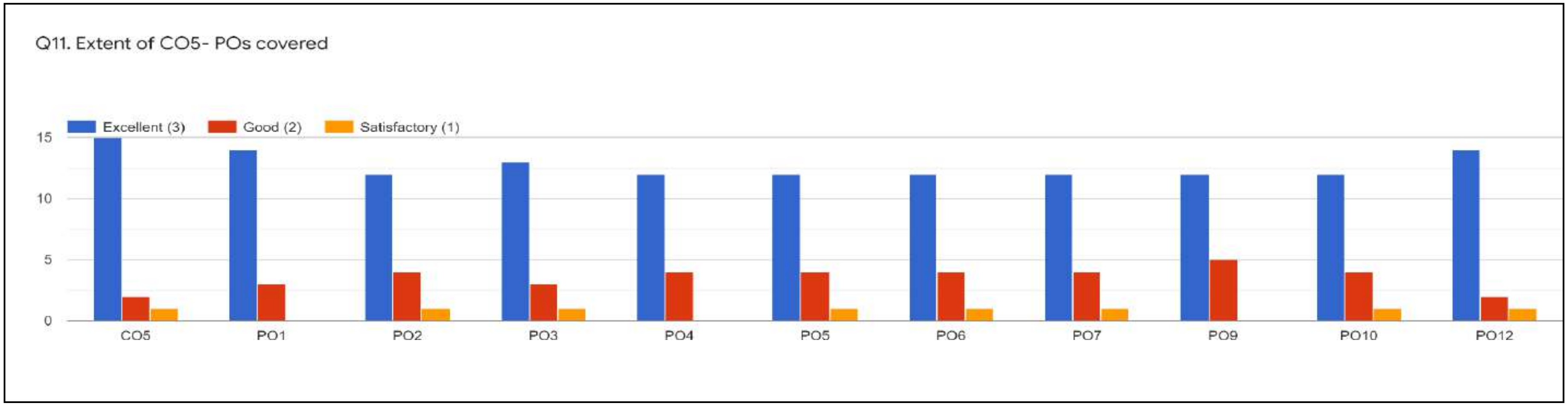


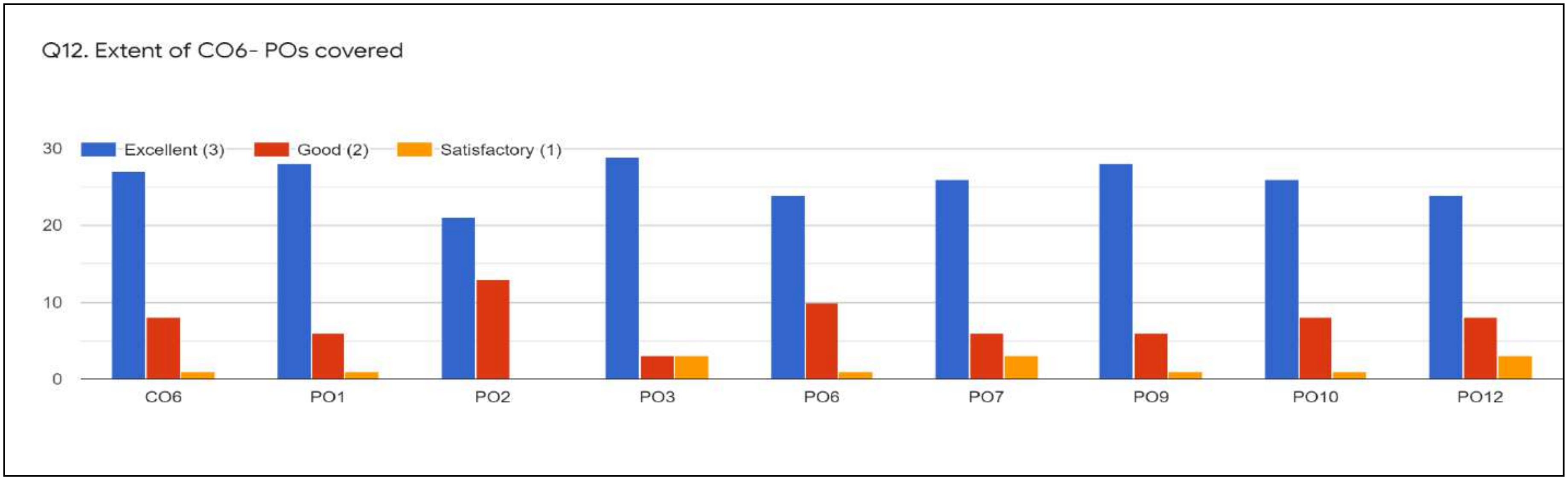
Q9. Extent of CO3- POs covered



Q10. Extent of CO4- POs covered

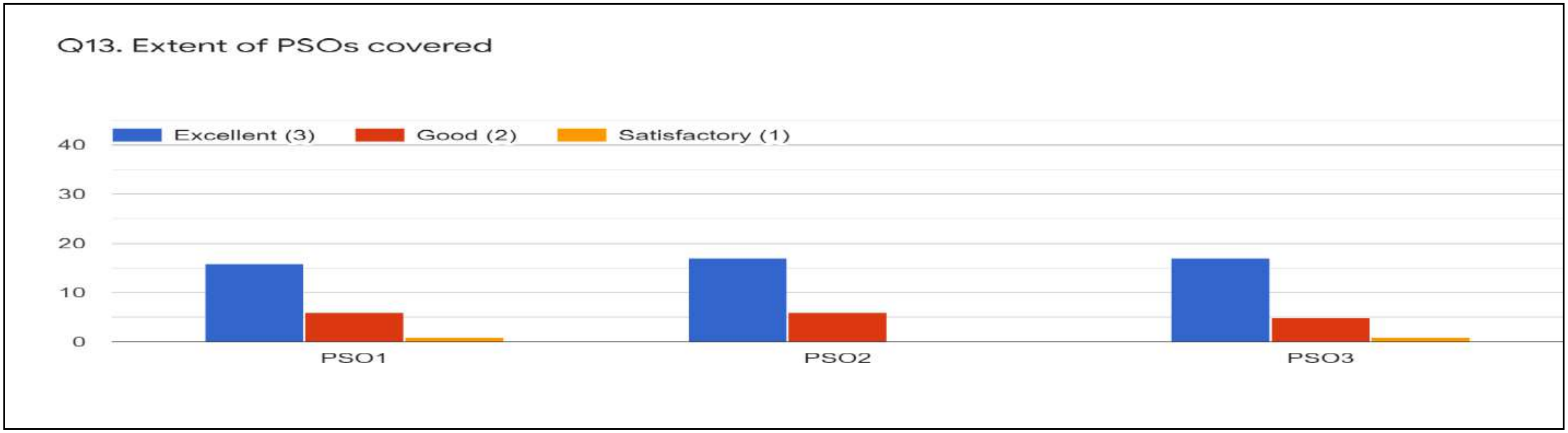



Q11. Extent of CO5- POs covered
Excellent (3)
Good (2)
Satisfactory (1)
15
10
5
0
CO5
PO1
PO2
PO3
PO4
PO5
PO6
PO7
PO9
PO10
PO12


Q12. Extent of CO6- POs covered
Excellent (3)
Good (2)
Satisfactory (1)
30
20
10
0
CO6
PO1
PO2
PO3
PO6
PO7
PO9
PO10
PO12

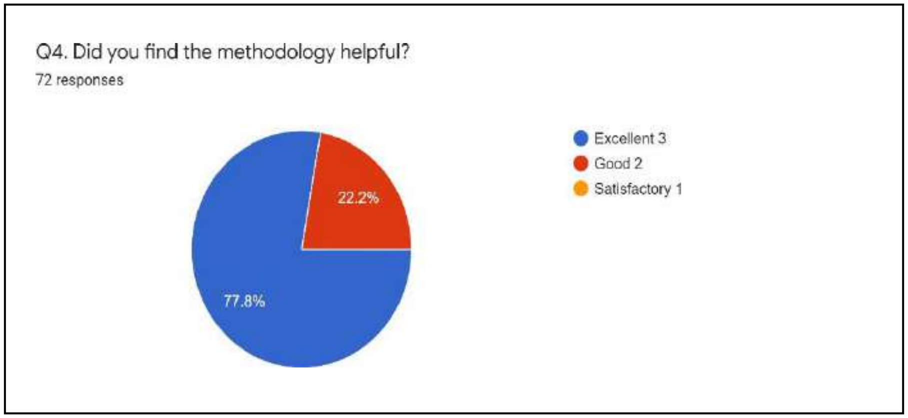
Program Specific Outcome

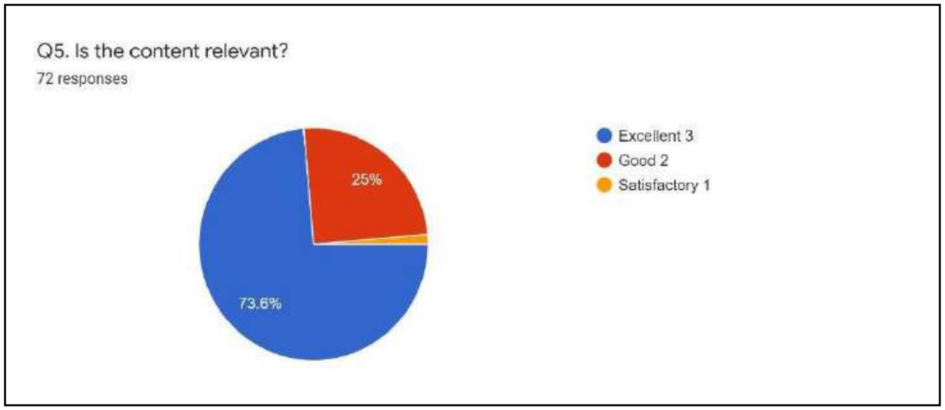
	Program Specific Outcome	PSO1	PSO2	PSO3
A	No. of Groups / Students Achieving PSO	69	69	69
B	Total Rating	191	188	191
C	Average Rating (B/A)	2.77	2.72	2.77

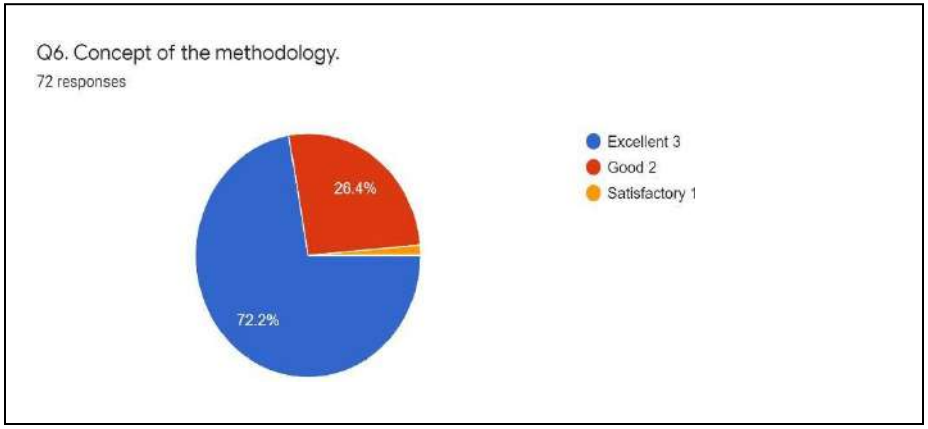


Impact Analysis of Methodology (Based on Students Feedback):

		1. Did you find the methodology helpful	2.Is the content relevant	3. Concept of the methodology
A	No. of Groups/Students Achieving CO	69	69	69
B	Total Rating	192	188	187
C	Average Rating (B/A)	2.78	2.72	2.71







Link for Review and Critics:
https://forms.gle/Y98zZRcWsZEXGyaN8