CERTIFICATE COURSE ON WATER ANALYSIS AND TREATMENT

Programme Coordinator : Dr. A. SEKAR
Associate and Head of the Chemistry

Course Teacher : Dr. A. SEKAR.,
Associate and Head of the Chemistry

Number of Student attended : 29

Class Hours & Timing : Weekly two hours & 3.30-4.30 pm

Syllabus

NEHRU MEMORIAL COLLEGE (Autonomous)
(Nationally accredited with 'A' grade by NAAC)
PUTHANAMPATTI

PG & RESEARCH DEPARTMENT OF CHEMISTRY
CERTIFICATE COURSE ON WATER ANALYSIS AND TREATMENT
STRUCTURE & SYLLABI
(CBCS)
(OPEN TO ALL)
2016-2017 onwards

15/2/2017

COURSE TITLE	CODE	INSTRUCTION Hrs./SEMESTER	CREDITS	EXAM HOURS	TOTAL MARKS
PAPER – I-Water Treatment	16YCER01	20	04	03	100
PAPER – II – Industrial and sewage Treatment	16YCER02	20	04	03	100
Lab III – Water analysis	16YCER03	20	04	03	100
	Total	**60**	**12**		**300**

CERTIFICATE COURSE FOR B.SC., CHEMISTRY

WATER ANALYSIS AND TREATMENT

PAPER – I - WATER TREATMENT

Unit: I Characteristics of water – uses of water – water for industry – sources of water - Quality of natural water – water in Human body – water as a solvent – main quality characteristics of water – alkalinity –Hardness – Total solids – oxidation – Transparency – silica content.

Unit II: Purification water – potability of water – Removal of coarse, dissolved and colloidal impurities from water – coagulation of water – flocculants.

Unit III: Sterilization and Disinfection of water – precipitation method – Ozonisation – silver ion method – chlorination – Bleaching powder method – Dechlorination – physical methods of sterilization.

Unit IV: Softening of water – clark's process – lime soda process – modified lime soda process – permutit or zeolite process – Ion exchange process.

Unit V: Demineralization of water – Determination of Hardness – calorimetric method – Titration method – soap method - complexometric method. Some calculations

Reference Books:

1. Dr. B. K. Sharma Industrial Chemistry Goel publishing House 2013.
2. Jain, p. C. And jain, m. *Engineering chemistry*, 10th ed.; dhanpat rai and sons: Delhi, 1993
3. Kamaraj, P.; jeyalakshmi, R. And Narayanan, V. *Chemistry in engineering and technology*; sudhandhira publications: chennai, 2001.
4. Kuriakose, j. C. And rajaram, j. *Chemistry in engineering and technology. Vol 2.; T*ata mcgraw hill: new delhi, 1988.

PAPER – II-INDUSTRIAL AND SEWAGE WATER TREATMENT

Unit I: Industrial water treatment – removal of iron –removal of silica – Removal of dissolved oxygen – removal of slime and algae from water- removal of smack and odour from water. Deaeration and Deoxygenation of water. Chemical deoxygenation of water – Removal of gas from water.

Unit II: Sea water as a source of drinking water – desalting – the freezing method – electrochemical desalting – Electro dialysis method – Reverse osmosis method.

Unit III: Formation deposits in boiler units and heat exchangers. Disadvantages of scale formation in boiler units – Methods of preventing deposit formation – Phosphate treatment of boiler water – Treatment of boiler water with complexing agents.

Unit IV: Water analysis – chemical and physical examination of water. Turbidity, odour, Temperature, pH, electrical conductivity, dissolved solids – acidity – total acidity – alkalinity – free carbon dioxide – free chlorine –calcium.

Unit V: Sewage water – its composition – purpose of sewage treatment – Methods of sewage treatment – Removal of phosphorous and nitrogen from waste water. Analysis sewage water – physical test – chemical test – Biological or bacteriological tests.

Reference books:

1. Dr. B. K. Sharma Industrial Chemistry Goel publishing House 2013.
2. **Gosain, A. K** (2010)Indian Water Resource Management: A Scientist's Analysis, Science in India Achievements and Aspirations, (Eds.) H.Y. Mohan Ram and P.N. Tandon, Indian National Science Academy, Pp 257-272
3. Jain, p. C. And jain, m. *Engineering chemistry*, 10th ed.; dhanpat rai and sons: Delhi, 1993

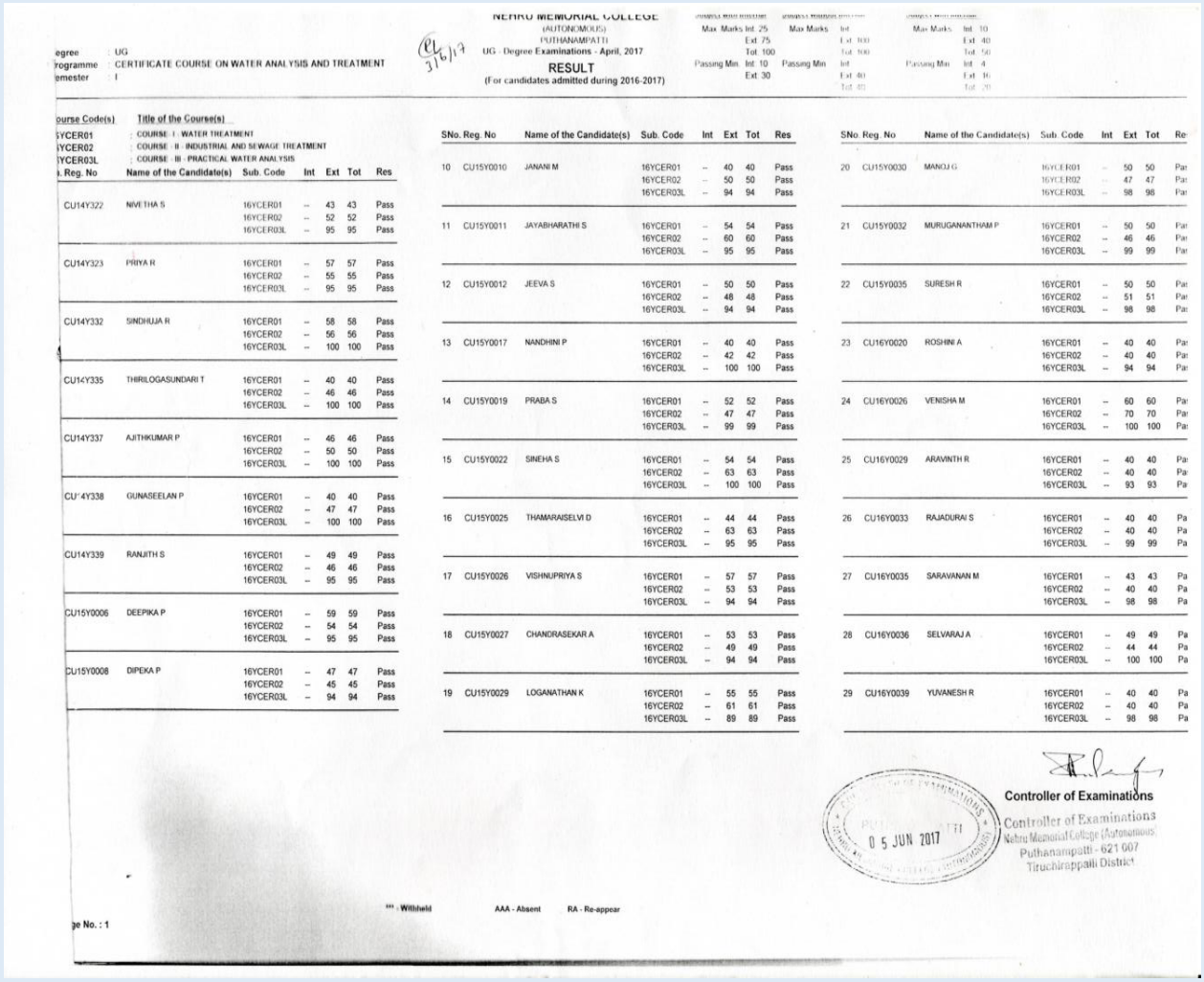
PAPER- III – PRACTICAL – WATER ANALYSIS

1. Determination of Dissolved Oxygen content of water sample by Winkler's method
2. Determination of chloride content of water sample by Argentometeric method
3. Determination of alkalinity in water sample
4. Determination of total, temporary & permanent hardness of water by EDTA method
5. Estimation of copper content of the given solution by EDTA method.

References:

1. V.Venkateswaran, R.Veeraswany and A.R.Kulandaivelu, basic principles of practical chemistry sultan chand & sons, New Delhi, second Edition (1977).
2. Arthur I. Vogel; Elementary practical chemistry Quantitative analysis, CB publishers and distribution.
3. Jugal, Kishore, Agrawal, *Practicals in Engineering Chemistry*; Oxford and IBH Publishing Co., New Delhi, 1976.

MARK STATEMENTS



NEHRU MEMORIAL COLLEGE
(AUTONOMOUS)
PUTHANAMPATTI
UG - Degree Examinations - April, 2017

RESULT
(For candidates admitted during 2016-2017)

Degree : UG
Programme : CERTIFICATE COURSE ON WATER ANALYSIS AND TREATMENT
Semester : I

Course Code(s)	Title of the Course(s)
16YCER01	: COURSE - I - WATER TREATMENT
16YCER02	: COURSE - II - INDUSTRIAL AND SEWAGE TREATMENT
16YCER03L	: COURSE - III - PRACTICAL WATER ANALYSIS

Reg. No	Name of the Candidate(s)	Sub. Code	Int	Ext	Tot	Res
CU14Y322	NIVETHA S	16YCER01	--	43	43	Pass
		16YCER02	--	52	52	Pass
		16YCER03L	--	95	95	Pass
CU14Y323	PRIYA R	16YCER01	--	57	57	Pass
		16YCER02	--	55	55	Pass
		16YCER03L	--	95	95	Pass
CU14Y332	SINDHUJA R	16YCER01	--	58	58	Pass
		16YCER02	--	56	56	Pass
		16YCER03L	--	100	100	Pass
CU14Y335	THIRILOGASUNDARI T	16YCER01	--	40	40	Pass
		16YCER02	--	46	46	Pass
		16YCER03L	--	100	100	Pass
CU14Y337	AJITHKUMAR P	16YCER01	--	46	46	Pass
		16YCER02	--	50	50	Pass
		16YCER03L	--	100	100	Pass
CU14Y338	GUNASEELAN P	16YCER01	--	40	40	Pass
		16YCER02	--	47	47	Pass
		16YCER03L	--	100	100	Pass
CU14Y339	RANJITH S	16YCER01	--	49	49	Pass
		16YCER02	--	46	46	Pass
		16YCER03L	--	95	95	Pass
CU15Y0006	DEEPIKA P	16YCER01	--	59	59	Pass
		16YCER02	--	54	54	Pass
		16YCER03L	--	95	95	Pass
CU15Y0008	DIPEKA P	16YCER01	--	47	47	Pass
		16YCER02	--	45	45	Pass
		16YCER03L	--	94	94	Pass

SNo.	Reg. No	Name of the Candidate(s)	Sub. Code	Int	Ext	Tot	Res
10	CU15Y0010	JANANI M	16YCER01	--	40	40	Pass
			16YCER02	--	50	50	Pass
			16YCER03L	--	94	94	Pass
11	CU15Y0011	JAYABHARATHI S	16YCER01	--	54	54	Pass
			16YCER02	--	60	60	Pass
			16YCER03L	--	95	95	Pass
12	CU15Y0012	JEEVA S	16YCER01	--	50	50	Pass
			16YCER02	--	48	48	Pass
			16YCER03L	--	94	94	Pass
13	CU15Y0017	NANDHINI P	16YCER01	--	40	40	Pass
			16YCER02	--	42	42	Pass
			16YCER03L	--	100	100	Pass
14	CU15Y0019	PRABA S	16YCER01	--	52	52	Pass
			16YCER02	--	47	47	Pass
			16YCER03L	--	99	99	Pass
15	CU15Y0022	SINEHA S	16YCER01	--	54	54	Pass
			16YCER02	--	63	63	Pass
			16YCER03L	--	100	100	Pass
16	CU15Y0025	THAMARAISELVI D	16YCER01	--	44	44	Pass
			16YCER02	--	63	63	Pass
			16YCER03L	--	95	95	Pass
17	CU15Y0026	VISHNUPRIYA S	16YCER01	--	57	57	Pass
			16YCER02	--	53	53	Pass
			16YCER03L	--	94	94	Pass
18	CU15Y0027	CHANDRASEKAR A	16YCER01	--	53	53	Pass
			16YCER02	--	49	49	Pass
			16YCER03L	--	94	94	Pass
19	CU15Y0029	LOGANATHAN K	16YCER01	--	55	55	Pass
			16YCER02	--	61	61	Pass
			16YCER03L	--	89	89	Pass

SNo.	Reg. No	Name of the Candidate(s)	Sub. Code	Int	Ext	Tot	Re
20	CU15Y0030	MANOJ G	16YCER01	--	50	50	Pa
			16YCER02	--	47	47	Pa
			16YCER03L	--	98	98	Pa
21	CU15Y0032	MURUGANANTHAM P	16YCER01	--	50	50	Pa
			16YCER02	--	46	46	Pa
			16YCER03L	--	99	99	Pa
22	CU15Y0035	SURESH R	16YCER01	--	50	50	Pa
			16YCER02	--	51	51	Pa
			16YCER03L	--	98	98	Pa
23	CU16Y0020	ROSHINI A	16YCER01	--	40	40	Pa
			16YCER02	--	40	40	Pa
			16YCER03L	--	94	94	Pa
24	CU16Y0026	VENISHA M	16YCER01	--	60	60	Pa
			16YCER02	--	70	70	Pa
			16YCER03L	--	100	100	Pa
25	CU16Y0029	ARAVINTH R	16YCER01	--	40	40	Pa
			16YCER02	--	40	40	Pa
			16YCER03L	--	93	93	Pa
26	CU16Y0033	RAJADURAI S	16YCER01	--	40	40	Pa
			16YCER02	--	40	40	Pa
			16YCER03L	--	99	99	Pa
27	CU16Y0035	SARAVANAN M	16YCER01	--	43	43	Pa
			16YCER02	--	40	40	Pa
			16YCER03L	--	98	98	Pa
28	CU16Y0036	SELVARAJ A	16YCER01	--	49	49	Pa
			16YCER02	--	44	44	Pa
			16YCER03L	--	100	100	Pa
29	CU16Y0039	YUVANESH R	16YCER01	--	40	40	Pa
			16YCER02	--	40	40	Pa
			16YCER03L	--	98	98	Pa

Controller of Examinations

05 JUN 2017

Controller of Examinations
Nehru Memorial College (Autonomous)
Puthanampatti - 621 007
Tiruchirappalli District

*** - Withheld AAA - Absent RA - Re-appear

Page No. : 1

NEHRU MEMORIAL COLLEGE (AUTONOMOUS)
(Nationally Accredited with 'A' Grade by NAAC)
Puthanampatti, Trichy- 621 007

PG & RESEARCH DEPARTMENT OF CHEMISTRY

VALUE ADDED COURSE ON WATER ANALYSIS AND TREATMENT

Attendance

2016 -2017

S.NO	NAME	CLASS	##########	##########	##########	##########	##########	##########	##########	##########	##########
1	P. Ajithkumar	III year chem	x	x	x	x	x	x	x	x	x
2	P. Gunaseelan	III year chem	x	x	x	x	x	x	x	x	x
3	S. Ranjith	III year chem	x	x	x	x	x	x	x	x	x
4	S. Nivetha	III year chem	x	x	x	x	x	x	x	x	x

5	R. Priya	III year chem	x	x	x	x	x	x	x	x	x	
6	R. Shindhuja	III year chem	x	x	x	x	x	x	x	x	x	
7	T. Thirilogasundari	III year chem	x	x	x	x	x	x	x	x	x	
8	P. Nandhini	II year chemi	x	x	x	x	x	x	x	x	x	
9	P. Deepika	II year chemi	x	x	x	x	x	x	x	x	x	
10	P. Dipeka	II year chemi	x	x	x	x	x	x	x	x	x	
11	S. Prabha	II year chemi	x	x	x	x	x	x	x	x	x	
12	M. Janani	II year chemi	x	x	x	x	x	x	x	x	x	
13	S. Jayabharathi	II year chemi	x	x	x	x	x	x	x	x	x	
14	S. Jeeva	II year chemi	x	x	x	x	x	x	x	x	x	
15	S. Sineha	II year chemi	x	x	x	x	x	x	x	x	x	
16	D. ThamaraiSelvi	II year chemi	x	x	x	x	x	x	x	x	x	
17	A. Chandarasekar	II year chemi	x	x	x	x	x	x	x	x	x	
18	K. Loganathan	II year chemi	x	x	x	x	x	x	x	x	x	

19	G. Manoj	II year chemi	x	x	x	x	x	x	x	x	x	
20	P.Muruganantham	II year chemi	x	x	x	x	x	x	x	x	x	
21	R. Suresh	II year chemi	x	x	x	x	x	x	x	x	x	
22	S. Vishnu Priya	II year chemi	x	x	x	x	x	x	x	x	x	
23	A. Roshini	I year chemis	x	x	x	x	x	x	x	x	x	
24	M. Venisha	I year chemis	x	x	x	x	x	x	x	x	x	
25	R. Aravinth	I year chemis	x	x	x	x	x	x	x	x	x	
26	S. Rajadhurai	I year chemis	x	x	x	x	x	x	x	x	x	
27	M. Saravanan	I year chemis	x	x	x	x	x	x	x	x	x	
28	A. Selvaraj	I year chemis	x	x	x	x	x	x	x	x	x	
29	R. Yovanesh	I year chemis	x	x	x	x	x	x	x	x	x	