OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR (CHITTORGARH) RAJASTHAN

Ref. No.: MU/RO/2020/465 **01st May 2020**

OFFICE ORDER

Sub: Reconstitution of Board of Studies for Department of Physiotherapy

The Board of Studies for the Department of Physiotherapy is reconstituted as per Rule 7 of Statutes of Mewar University, as under:

1) Mr. Dhwaj kirti Sharma, Dean Academics	- Chairman
2) Dr. Ajeet Kumar (Principal, Jaipur Physiotherapy College)	- External Member
3). Dr. Faiq Ahmad (Assistant Professor)	- Intermal Member
4). Dr. Shekhar Singh (Asst. Professor, Jaipur Physiotherapy College)	- External Member
5). Dr. R.D Bhatt (Senior Physician Pal Hospital)	- External Member
6). Ms. Shanti Nath Asst. Professor	- Internal Member
7) Dr. Nitu (Head & Assistant Professor)	- Convener

The terms of reference for the Board of Studies are as provided in Rule 7 of the Statutes.

The Chairman of the Board of Studies may associate any member in the meeting as special invitee if it is considered his association will be contribute in the task of the meeting, with the approval of President/Vice-Chancellor.

The Convener of the Meeting is advised to hold the meeting of BOS seeking convenience of the Chairman on 2nd Week of May 2020. The proceedings of the meeting may be sent to the VC/Registrar as early as possible.

The External Members shall be entitled for TA/DA and sitting fees as per the norms prescribed by the Mewar University.

Registrar
Registrar
Mewar University
Gangrar, (Chittorgarh)

Copy to:

- PS to Hon'ble Chairperson (for kind information)
- PS to Hon'ble President (for kind information)
- PS to Hon'ble Pro-President (for kind information)
- All concerned Deans/Directors/HoD's (for kind information & necessary action)
- Accounts/Examination/Library/Store/Warden/Security/IT Head.
- Coordinator, IQAC Cell.
- Record file.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF PHYSIOTHERAPY

DATE: 12th May 2020

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department of Physiotherapy meeting held on 12-05-2020 at 11.30 AM in room no. 135.

The following members were present: **(Annexure 1)**

1) Mr. Dhwaj kirti Sharma, Dean Academics - Chairman
2) Dr. Ajeet Kumar, Principal, Jaipur Physiotherapy College - External Member
3). Dr. Faiq Ahmad (Assistant Professor) - Intermal Member
4). Dr. Shekhar Singh, Asst. Professor, Jaipur Physiotherapy College - External Member
5). Dr. R.D Bhatt, Senior Physician, Pal Hospital - External Member
6). Ms. Shanti Nath, Assistant Professor - Internal Member
7) Dr. Nitu, Head & Assistant Professor - Convener

Dr. Nitu (Head, Department of Physiotherapy) warmly welcomed all the board members. The Head also valued the participation of outside specialists who traveled far and wide to attend this gathering.

Agenda 1: To approve minutes of the previous BOS, held on 10-06-2019

Resolution: Minutes of the previous BOS of the Physiotherapy department held on 10-06-2019 were discussed and approved.

Agenda 2: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Dr. Nitu (Head of the Physiotherapy department) presented a departmental activity report mentioning all the activities conducted related to curricular development, research and development, faculty development

Agenda 3: Reviewof Existing Programmes/Courses

Resolution: The Committee reviewed the scheme and syllabus of BPT and approved it without any change for the session 2020-21.

Agenda 4: To recommend the approved syllabus to Academic Council

Resolution: Members of the Board of Studies approved the syllabus and recommended the same be forwarded to the Academic Council for their approval.

The meeting was dissolved with thanks to the Chair and all the Board of Studies Members.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF PHYSIOTHERAPY

DATE: 12th May 2020

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Mr. Dhwaj kirti Sharma (Dean Academics)	Chairman	
2	Dr. Ajeet Kumar Saharan (Principal, Jaipur Physiotherapy College)	External Member	12/5/20
3	Dr. Shekhar Singh (Asst. Professor, Jaipur Physiotherapy College)	External Member	12/5/20
4	Dr. Faiq Ahmad Asst. Professor	Internal Member	
5	Ms. Shanti Nath Asst. Professor	Internal Member	
6	Dr. Nitu Head & Assistant Professor	Convener	

Suggestions by External Expert 1

Suggestions by External Expert 2

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.:MU/RO/2020/ 498-A **26th May 2020**

OFFICE ORDER

Sub.: Reconstitution of Board of Studies for Department of Chemistry

The Board of Studies for the Department of Chemistry is reconstituted as per Rule 7of the Statutes of Mewar University, as under:

1. Mr. D. K. Sharma, Dean Academics	- Chairman
2. Dr. Bharti Mehta, HOD Chemistry, Govt. MPPG College Chittorgarh	- External Member
3. Dr. B.V. Kabra, HOD Chemistry, MLV, Govt. College Bhilwara	- External Member
4. Mr.Giriraj Tailor, Assistant Professor, Chemistry	- Internal Member
5. Ms. Firdosh Pathan, Assistant Professor, Chemistry	- Internal Member
6. Mr. Ashwini Kumar Jaiswal	- Alumni
7. Dr. Bhupendra Kumar Sarma, Head & Assistant Professor	-Convener

The terms of reference for the Board of Studies are as provided in Rule 7 of the Statutes.

The Chairman of the Board of Studies may associate any member in the meeting, as special invitee if it is considered his association will contribute in the task of the meeting with the approval of the President/Vice Chancellor.

The Convener of the Meeting is advised to hold the meeting of the BOS seeking convenience of the Chairman in the third week of June 2020. The proceedings of the meeting may be sent to the VC/Registrar as early as possible.

The External Members shall be entitled for TA/DA and sitting fees as per the norms prescribed by the Mewar University.

Registrar
Registrar
Mewar University
Gangrar, (Chittorgarh)

Copy to:

- PS to Hon'ble Chairperson (for kind information)
- PS to Hon'ble President (for kind information)
- PS to Hon'ble Pro-President (for kind information)
- All concerned Deans/Directors/HoD's (for kind information & necessary action)
- Accounts/Examination/Library/Store/Warden/Security/IT Head.
- Coordinator, IQAC Cell.
- Record file.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF CHEMISTRY

DATE: 15.06.2020

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department of Chemistry meeting held on 15-06-2020 at 11.30 AM.

The following members were present: **(Annexure 1)**

1. Mr. D. K. Sharma, Dean Academics -Chairman
2. Dr. Bharti Mehta, HOD Chemistry, Govt. MPPG College Chittorgarh - External Member
3. Dr. B.V. Kabra, HOD Chemistry, MLV, Govt. College Bhilwara - External Member
4. Mr. Giriraj Tailor, Assistant Professor - Internal Member
5. Ms. Firdosh Pathan, Assistant Professor - Internal Member
6. Mr. Ashwini Kumar Jaiswal - Alumni
7. Dr. Bhupendra Kumar Sarma, Head & Assistant Professor - Convener

At the outset, Dr. Bhupendra Kumar Sharma, Head of the Department of Chemistry, warmly welcomed all the board members. The Head also appreciated the presence of outside experts who took the pain and keen interest to attend this meeting.

Agenda 1: To approve minutes of the previous BOS, held on 13-06-2019

Resolution: Minutes of the previous BOS of the Chemistry Department held on 13-06-2019 were discussed and approved.

Agenda 2: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Dr. Bhupendra Kumar Sarma (Head of, Department of Chemistry) presented the annual report of the department.

Agenda 3: Review of Existing Programmes/ Courses

Resolution: The committee reviewed and approved the syllabus of the M.Sc. Programme. **(Annexures 2)**

Agenda 4: Introduction of New Programmes/ Course

Resolution:

1. Suggestions received from previous BOS committee members that three new courses will be started in B.Sc. Chemistry (Honors) from the upcoming session 2020-21. A listing of practical and marks distribution (scheme of practical) should be done and appended with the syllabus. **(Annexure 3)**

- Chemistry for Sustainable Development
- Organic Synthesis-I
- Organic Synthesis-II

2. Suggestions received from previous BOS committee members that two new courses will be started in M.Sc Organic Chemistry so that students can opt his/her choice to study interest from the upcoming session 2020-21. A listing of practical and marks distribution (scheme of practical) should be done and appended with the syllabus. **(Annexure 4)**
    - Chemistry of organic compounds-I
    - Chemistry of organic compounds-II

Agenda 5: Any other suggestions by BOS Committee

Resolution: Feedback received from the BOS committee members suggests that the department introduce some new courses in the upcoming session.

Agenda 6: To recommend the approved syllabus to Academic Council.

Resolution: Members of the Board of Studies approved the revised syllabus and recommended the same be forwarded to the Academic Council for their approval.

The meeting was dissolved with thanks to the Chair and all the Board of Studies Members.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF CHEMISTRY

DATE: 15.06.2020

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Mr. D. K. Sharma, Dean Academics	Chairman	
2	Dr. Bharti Mehta, HOD Chemistry, Govt. MPPG College Chittorgarh	External Member	15-06.2020
3	Dr. B.V. Kabra, HOD Chemistry, MLV, Govt College Bhilwara	External Member	B.V. Kabra 15/6/2020
4	Mr. Giriraj Tailor, Assistant Professor	Internal Member	Tailor 15/6/20
5	Ms. Sunita Sharma, Assistant Professor	Internal Member	
6	Mr. Ashwini Kumar Jaiswal	Alumni	
7	Dr. Bhupendra Kumar Sarma, Head, Chemistry	Convener	B.K. Sarma
		Special Invitee (if any)	

CHEMISTRY FOR SUSTAINABLE DEVELOPMENT [Credits: 4]

UNIT-1

Hydrosphere:

Hydrological cycle of water, Water pollution – inorganic, organic, pesticide, agricultural, industrial and sewage, detergents, oil spills and oil pollutants. Water quality parameters – dissolved oxygen, biochemical oxygen demand, solids, metals, content of chloride, sulphate, phosphate, nitrate and micro-organisms. Water quality standards.

UNIT-2

Thermoanalytical methods:

Introduction, Thermogravimetric analysis (TGA), Derivative Thermogravimetric analysis (DTGA), factors affecting TGA and applications, Differential thermal analysis (DTA): theory, factors affecting DTA and applications.

UNIT-3

Chromatography:

Introduction, Classification of chromatographic methods; Adsorption and Partition Chromatography (Column, Paper and Thin Layer Chromatography), ion exchange chromatography: Principles and Applications.

Analysis of Food: Importance of Food analysis, Determination of approximate composition: Moisture, Fat, Protein, Fiber, Carbohydrate etc.

Reference Books:

1. Environmental Chemistry; A. K. De, Wiley Eastern.
2. Environmental Pollution Analysis; S. M. Khopkar, Wiley Eastern.
3. Environmental Chemistry; S. K. Banerji: Prentice – Hall.
4. Dynamics of Chromatography Part I; J. C. Gidding; Dekker, New York.
5. Instrumental methods of Analysis; L. L. Merits, R. H. Willard and J. A. Dean; Van Nostrand-Reinhold.

Organic Synthesis-I (Credit-4)

Unit-I

Formation of Carbon-Carbon sing;le bonds: alkylations via enolate the enamine and related reactions umplong (dipole inversion) - The aldol reaction- applications of organ palladium, organo nickel and organo copper reagents , applications of thicarbonions- selenocarbonions and sulphur yields, synthetic applications of carbenes and carbenoids.

Unit-II

Formation of carbon-carbon double bonds: Elimination reactions Pyrolytic, syneliminations, sulphoxide-sulphonate rearrangement the witting reaction-alkenes form
arylsluphonyl-hydrazones-claisen rearrangement of allyl vinylethers.

Methods of polymerization (a) Addition polymerization (b) Condensation polymerization and (c) Radical polymerizations (two examples of each method). Reactions of unactivated carbonhydrogen bonds: The HoffmannLieffier- Freytag reaction-the Barton reaction-Photolysis of organic hypothalites.

Unit-III

Synthetic applications of organobornaes Organoboranes: Preparation of organobornaes viz hydroboration with BH3-THF, dicylohexyl borane, disiamyl borane, theryl borane, 9-BBN and disopincamphlyel borne, functional group transformations of Organo boranes-Oxidation, protonolysis and rearrangements. Formation, of carbon-carbon-bonds viz organo boranes carbonylation, the cyanoborate process and reaction of alkenyl boranes and trialkenyl borates.

Organic Synthesis-II (Credit-4)

Unit-I

Organo silanes. Synthetic applications of trimethylsilyl chloride dimethyl-t-butylsilyl chloride, trimetthylsilyl cyanide, trimethylsilyl iodide and trimethylsilyl triflate, synthetic applications of· silyl carbanion and B-silyl carbonium ions.

Phase transfer catalysis-Principle and applications.

Unit-II

Oxidation: Oxidations of hydrocarbons, aikenes, alcohols aldehydes and ketones oxidative coupling reactions. Use of Pb (OAC)4, NBs.. CRO3, SeO2, NinO2 Dc-alkoxyluphonium yields, KMnO4, OsO4, peracids and Ti (III) nitrate.

Unit-III

REDUCTION: Catalytic hydrogenation (homogeneous and heterogeneous), reduction by dissolving metals. reduction by hydride transfer -reagents, reduction with hydrazine and diamide, selectivity in reduction of nitroso and ritro compounds, reductive cleavage.

Chemistry of Organic compounds-I (CYMS-303-4, Credit-4)

Unit-I

Formation of Carbon-Carbon sing;le bonds: alkylations via enolate the enamine and related reactions umplong (dipole inversion) - The aldol reaction- applications of organ palladium, organo nickel and organo copper reagents , applications of thicarbonions- selenocarbonions and sulphur yields, synthetic applications of carbenes and carbenoids.

Unit-II

Formation of carbon-carbon double bonds: Elimination reactions Pyrolytic, syneliminations, sulphoxide-sulphonate rearrangement the witting reaction-alkenes form
arylsluphonyl-hydrazones-claisen rearrangement of allyl vinylethers.

Methods of polymerization (a) Addition polymerization (b) Condensation polymerization and (c) Radical polymerizations (two examples of each method). Reactions of unactivated carbonhydrogen bonds: The HoffmannLieffier- Freytag reaction-the Barton reaction-Photolysis of organic hypothalites.

Unit-III

Synthetic applications of organobornaes Organoboranes: Preparation of organobornaes viz hydroboration with BH3-THF, dicylohexyl borane, disiamyl borane, theryl borane, 9-BBN and disopincamphlyel borne, functional group transformations of Organo boranes-Oxidation, protonolysis and rearrangements. Formation, of carbon-carbon-bonds viz organo boranes carbonylation, the cyanoborate process and reaction of alkenyl boranes and trialkenyl borates.

Chemistry of Organic compounds-II (CYMS-303-5, Credit-4)

Unit-I

Organo silanes. Synthetic applications of trimethylsilyl chloride dimethyl-t-butylsilyl chloride, trimetthylsilyl cyanide, trimethylsilyl iodide and trimethylsilyl triflate, synthetic applications of· silyl carbanion and B-silyl carbonium ions.

Phase transfer catalysis-Principle and applications.

Unit-II

Oxidation: Oxidations of hydrocarbons, aikenes, alcohols aldehydes and ketones oxidative coupling reactions. Use of Pb (OAC)4, NBs.. CRO3, SeO2, NinO2 Dc-alkoxyluphonium yields, KMnO4, OsO4, peracids and Ti (III) nitrate.

Unit-III

REDUCTION: Catalytic hydrogenation (homogeneous and heterogeneous), reduction by dissolving metals. reduction by hydride transfer -reagents, reduction with hydrazine and diamide, selectivity in reduction of nitroso and ritro compounds, reductive cleavage.

D.R.

OFFICE OF THE REGISTRAR
MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO /2020/~~779~~

03rd September 2020

OFFICE ORDER

Sub.: Reconstitution of Board of Studies for Department of Humanities.

The Board of Studies for the Department of Humanities is reconstituted as per Rule 7 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) Chitralekha Singh, Dean, Faculty of Humanities, Social Science & Fine Arts - Chairman
2) Prof. (Dr.) Shushila Laddha, Maharana Pratap Government PG College, Chittorgarh - External Member
3) Prof. (Dr.) Hemraj Meena, Kendriya Hindi Sansthan Aagra (UP) - External Member
4) Dr. Mahesh Chandra Dubey, Assistant Professor - Internal Member
5) Mrs. Manju Chashta, Assistant Professor - Internal Member
6) Dr. Sonia Singla, Head & Assistant Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 7 of the Statutes.

The Chairman of the Board of Studies may associate any member in the meeting, as a special invitee if it is considered his association will contribute to the task of the meeting with the approval of the President/Vice-Chancellor.

The Convener of the Meeting is advised to hold the meeting of the BOS seeking the convenience of the Chairman in the third week of October 2020. The proceedings of the meeting may be sent to the VC/Registrar as early as possible.

The External Members shall be entitled to TA/DA and sitting fees as per the norms prescribed by Mewar University.

Registrar
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Mewar University
Gangrar, (Chittorgarh)

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- Record file.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF HUMANITIES

DATE: 16/10/2020

Minutes of Meeting of Board of Studies

The Board of Studies Meeting of the Department of Humanities was held on 16th October 2020 in Room No. 135 at 11:00 am onwards to approve the new/changes in curriculum and Syllabus revision for session 2020-21.

The following members were present: **(Annexure 1)**

1) Prof. (Dr.) Chitralekha Singh, Dean, Faculty of Humanities, Social Science & Fine Arts - Chairman
2) Prof. (Dr.) Shushila Laddha, Maharana Pratap Government PG College, Chittorgarh - External Member
3) Prof. (Dr.) Hemraj Meena, Kendriya Hindi Sansthan Aagra (UP) - External Member
4) Dr. Mahesh Chandra Dubey, Assistant Professor - Internal Member
5) Mrs. Manju Chashta, Assistant Professor - Internal Member
6) Dr. Sonia Singla, Head & Assistant Professor - Convener

Mrs. Sonia Singla, (Head, Department of Humanities) warmly welcomed all the board members. The Head also appreciated the presence of outside experts who took the pain and keen interest to attend this meeting.

Agenda 1: To approve minutes of the previous BOS, held on 06-07-2019

Resolution: Minutes of the previous BOS of the Humanities department held on 06-07-2019 were discussed and approved.

Agenda 2: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Dr. Sonia Singla, (HOD, Humanities) presented a departmental activity report mentioning all the activities conducted related to curricular development, research development and faculty development.

MEWAR UNIVERSITY * Mewar University Knowledge to Wisdom * Chittorgarh - 312901 (Raj.)

Agenda 3: Review in any Program/Course

Resolution: The Committee reviewed the scheme and syllabus of the BPA, MPA, BVA, MVA, MA (English) and MA (Hindi) Programme in the upcoming session 2020-21.

Agenda 4: Introduction of new Programme/Courses to be added.

Resolution: With the suggestions received from the members of the BOS committee, it has been decided to start a new programme Bachelor of Arts (B.A.) in the upcoming session 2020-21. **(Annexure 2)**

- Bachelor of Arts (B.A.)

Agenda 5: Any other suggestions by BOS Committee

Resolution:

- In addition, BOS will also explore the possibility of conducting new courses according to the requirement of today's scenario.
- To offer suggestions for identifying areas for the conduction of workshops/seminars etc. in the coming session.

Agenda 6: To recommend the approved syllabus to Academic Council.

Resolution: Members of the Board of Studies approved the reviewed syllabus and recommended the same be forwarded to the Academic Council for their approval.

The meeting was concluded with a gentle thank you by the Chairperson

MEWAR UNIVERSITY * Chittorgarh - 312901 (Raj.) * Mewar University Knowledge to Vision

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF HUMANITIES

DATE: 16/10/2020

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Prof. (Dr.) Chitraleka, Dean, Faculty of Humanities, Social Science & Fine Arts	Chairman	16.10.2020
2	Dr. Shushila Laddha, Professor, Maharana Pratap Government PG College, Chittorgarh	External Member	
3	Prof. Hemraj Meena, Kendriya Hindi Sansthan Agra (UP)	External Member	
4	Dr. Mahesh Chandra Dubey, Assistant Professor	Internal Member	
5	Manju Chashta, Assistant Professor	Internal Member	16.10.20
6	Dr. Sonia Singla, Head, Department of Humanities	Convener	16-10-20

SCHEME OF SYLLABUS B.A. GENERAL (1st Year)

B.A. (General) First Year										
Papers	Paper Code	Subject Name	Effective Teaching			Credits	Evaluation Scheme			
			L	T	P		Internal Assessment	Teacher Enrichment	End Term	Total marks
Compulsory Papers										
Paper – I		Hindi	4	1	-	5	35	15	50	100
Paper - II		Fundamental of computer Science	4	1	-	5	35	15	50	100
Elective Papers (Choose any three subjects from Elective Papers)										
Option 1		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
Option 2		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
Option 3		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
	Total		32	8	-	40	280	120	400	800

Elective Papers (Choose any three subjects from Elective Papers)	
1	English Literature-I (PAPER A- Drama & Poetry-I, PAPER B- Prose & Fiction-I)
2	Hindi Literature (PAPER A- Kavya(Chayavad), PAPER B- Gadhya(Aadhunik Nimbandh v Natak)
3	Sanskrit (PAPER A- Kavya, Natak, Prayogik vyakaran, PAPER B- Gadhya, vyakaran, anuvad)
4	Rajasthani Literature (PAPER A- Adhunik Gdhya, PAPER B- Adhunik

	Rajasthani Kavya)
5	History (PAPER A- History of India up to 1000 A.D., PAPER B- History of India 1000 to 1707 A.D.)
6	Political Science (PAPER A-Fundamental of Pol Sc., PAPER B-Indian Political Thinkers)
7	Geography (PAPER A- Physical Geography. PAPER B- Human Geography)
8	Home Science (PAPER A- Food & Nutrition, PAPER B- Community Health & Family Welfare)
9	Public Administration (PAPER A- Elements of Pub. Ad, PAPER B- Pub. Ad. In India)
10	Economics (PAPER A- Micro Economics, PAPER B- Indian Economic Environment)
11	Sociology (PAPER A- Intro. to Sociology, PAPER B- Society in India: Structure & Change)
12	Psychology (PAPER A- Basic Psychological Process, PAPER B- Social Psychology)

SCHEME OF SYLLABUS B.A. GENERAL (2nd Year)

B.A. (General)

Second Year

Papers	Paper Code	Subject Name	Effective Teaching			Credits	Evaluation Scheme			
			L	T	P		Internal Assessment	Teacher Enrichment	End Term	Total marks
Compulsory Papers										
Paper – I		English	4	1	-	5	35	15	50	100
Paper - II		Environmental Science	4	1	-	5	35	15	50	100

Dr. Sonia Singla

Elective Papers (Choose any three subjects from Elective Papers)										
Option 1		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
Option 2		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
Option 3		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
	Total		32	8	-	40	280	120	400	800

Elective Papers (Choose any three subjects from Elective Papers)	
1	English Literature-II (PAPER A- Drama-II, PAPER B- Poetry-II)
2	Hindi Literature (PAPER A- Kavya(Ritikaal), PAPER B- Gadhya(Aadhunik Kahaaniyaan)
3	Sanskrit (PAPER A- Natak, Chhand, Alankar, PAPER B-Prachin Bhartiya Sanskriti,Dharmshashtra vyakaran, evam Nibandh)
4	Rajasthani Literature (PAPER A- Gdhya, PAPER B-Padhya)
5	History (PAPER A- History of India up to 1707 to 1884 A.D., PAPER B- History of India 1885 to 1950 A.D.)
6	Political Science (PAPER A-Modern Constitutions, PAPER B-Indian Political System)
7	Geography (PAPER A- World Regional Geography. PAPER B- Economic & Resource Geography)
8	Home Science (PAPER A- Food & Nutrition-II, PAPER B- Community Health & Family Welfare-II)
9	Public Administration (PAPER A- Administrative Institutions, PAPER B- State Administration in India)
10	Economics (PAPER A- Micro Economics, PAPER B- Financial

DR. Sonic Singh

	Economics)
11	Sociology (PAPER A- Social Research Methodology, PAPER B- Issues & Problems in Indian Society)
12	Psychology (PAPER A- Psychological Statistics & Research Methodology, PAPER B- Psychopathology)

SCHEME OF SYLLABUS B.A. GENERAL (3rd Year)

B.A. (General)

Third Year

Papers	Paper Code	Subject Name	Effective Teaching			Credits	Evaluation Scheme			
			L	T	P		Internal Assessment	Teacher Enrichment	End Term	Total marks
Elective Papers (Choose any three subjects from Elective Papers)										
Option 1		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
Option 2		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
Option 3		PAPER-A	4	1	-	5	35	15	50	100
		PAPER-B	4	1	-	5	35	15	50	100
	Total		24	6	-	30	210	90	300	600

Elective Papers (Choose any three subjects from Elective Papers)	
1	English Literature-III (PAPER A- Drama & Poetry-III, PAPER B- Fiction-III)
2	Hindi Literature (PAPER A- Kavya(Bhaktikaal), PAPER B- Gadhya(Nibandh v Upanyaas)

DR. Seema Singla

3	Sanskrit (PAPER A- Vaidik Laukik Kavy evam Gadhya, PAPER B-Itihas, Darshan, Anuvad evam Nibandh)
4	Rajasthani Literature (PAPER A- Rajasthani Bhasha evam Sahitya ka Itihas evam Nibandh, PAPER B-Prachin evam Madhyakalin Kavya)
5	History (PAPER A- Outline History of Rajasthan. PAPER B - Western World 1848 to 1950 A.D.)
6	Political Science (PAPER A-Western Political Thought & ISMS, PAPER B-International Relations)
7	Geography (PAPER A- Geography of India. PAPER B- Geographyof Rajasthan)
8	Home Science (PAPER A- Human Development & Family Relationship, PAPER B- Textile & Laundry)
9	Public Administration (PAPER A- Local Administration, PAPER B- Cooprative Administrative System)
10	Economics (PAPER A- Quantitative Techniques in Economics, PAPER B- International Economics)
11	Sociology (PAPER A- Foundation of Sociological Thought, PAPER B - Rural & Urban Sociology)
12	Psychology (PAPER A-Health Psychology, PAPER B- Guidance & Counseling Psychology)

	First Year	Second Year	Third Year	Total
Credits	40	40	30	110
Marks	800	800	600	2200

OFFICE OF THE REGISTRAR
MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/2020/476 **6th May 2020**

OFFICE ORDER

Sub.: Reconstitution of Board of Studies for Department of Electronics and Communication Engineering

The Board of Studies for the Department of Electronics and Communication Engineeringis reconstituted as per Rule 7 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) Tanveer Ahmed Kazi, Dean of Engineering - Chairman
2) Dr. Navneet Kumar Agrawal, Associate Professor, CTAE, Udaipur (Raj.) - External Member
3) Mr. Giriraj Sharma, SDE,BSNL, Kota - External Member
4) Mr. JitendraVaswani, Assistant Professor - Internal Member
5) Mr. Ritesh Kumar Ojha, Assistant Professor - Internal Member
6) Ms. Sukriti Nuwal, Mathematics, Sangam School of Excellence, (Bhilwara) -Alumni
7) Mr. Gaurav Sharma, Head & Assistant Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 7 of the Statutes.

The Chairman of the Board of Studies may associate any member in the meeting, as special invitee if it is considered his association will contribute in the task of the meeting with the approval of the President/Vice Chancellor.

The Convener of the Meeting is advised to hold the meeting of the BOS seeking convenience of the Chairman in the fourth week of June 2020. The proceedings of the meeting may be sent to the VC/Registrar as early as possible.

The External Members shall be entitled for TA/DA and sitting fees as per the norms prescribed by the Mewar University.

Registrar
Mewar University
Gangrar, (Chittorgarh)

Copy to:

- PS to Hon'ble Chairperson (for kind information)
- PS to Hon'ble President (for kind information)
- PS to Hon'ble Pro-President (for kind information)
- All concerned Deans/Directors/HoD's (for kind information & necessary action)
- Accounts/Examination/Library/Store/Warden/Security/IT Head.
- Coordinator, IQAC Cell.
- Record file.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

DATE: 22/06/2020

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department of Electronics and Communication Engineering meeting held on 22-06-2020 at 11.30 AM.

The following members were present: **(Annexure 1)**

1) Prof. (Dr.) Tanveer Ahmed Kazi, Dean of Engineering - Chairman
2) Dr. Navneet Kumar Agrawal, Associate Professor, CTAE, Udaipur (Raj.) - External Member
3) Mr. Giriraj Sharma, SDE,BSNL, Kota - External Member
4) Mr. JitendraVaswani, Assistant Professor - Internal Member
5) Mr. Ritesh Kumar Ojha, Assistant Professor - Internal Member
6) Ms. Sukriti Nuwal, Mathematics, Sangam School of Excellence, (Bhilwara) -Alumni
7) Mr. Gaurav Sharma, Head & Assistant Professor - Convener

At the outset, Mr. Gaurav Sharma, Head, Electronics & Communication Engineering, warmly welcomed all the board members. The Head also appreciated the presence of outside experts who took the pain and keen interest to attend this meeting.

Agenda 1: To approve minutes of the previous BOS, held on 06-06-2019

Resolution: Minutes of the previous BOS of the Electronics & Communication Engineering department held on 06-06-2019 were discussed and approved.

Agenda 2: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Mr. Gaurav Sharma, (Head, Electronics & Communication Engineering) presented a departmental activity report mentioning all the activities conducted related to curricular development, research and development, faculty development, and Industrial collaboration.

Agenda 3: Review of Existing Programmes/Courses

Resolution: The Committee reviewed the scheme and syllabus of the B. Tech (ECE) and M. Tech (DC) and M.Tech (VLSI) programme and approved the scheme and syllabus for the session 2020-21. **(Annexure 2)**

22/6/20

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

Agenda 4: Introduction of New Programme/Course

Resolution:

1. The BOS Committee approved the syllabus of four new courses in M. Tech. (VLSI) for PG students from session 2020-21 are mentioned below. **(Annexure 3)**

- Computer-Aided Design for VLSI
- IC Technology
- VLSI Testing and Testability
- Memory Design and Testing

2. The BOS Committee members also approved the syllabus of four new courses in B. Tech. (Electronics & Communication Engineering) for UG students from session 2020-21 are mentioned below. **(Annexure 4)**

- Fiber Optic Communication
- Scientific Computing
- Wavelets
- Speech and Audio Processing

Agenda 5: Any other suggestions by BOS Committee

Resolution: Suggestion regarding subject scheme and syllabus-

1. The importance and possibilities of departmental research activities were discussed and suggestions were given for the up-gradation of the syllabus.
2. In the future, the courses and programs should be designed and developed according to today's demand so that it will be a good opportunity to attract students and industries also.
3. New programs should be introduced e.g. PG Diploma in IoT and B.Sc. in Electronic Science as per the industrial requirement for the next session 2019-2020.

Agenda 6: To recommend the approved syllabus to Academic Council.

Resolution: Members of the Board of Studies approved the syllabus and recommended the same be forwarded to the Academic Council for their approval.

The meeting was dissolved with thanks to the Chair and all the Board of Studies Members.

22/6/2020

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

DATE: 22/06/2020

Annexure 1: Attendance Sheet

S.NO.	Name& Designation	Designation in BOS	Signature
1	Prof. (Dr.) Tanveer Ahmed Kazi, Dean Engg.	Chairman	22/6/2020
2	Dr. Navneet Kumar Agrawal,Associate Professor, CTAE, Udaipur (Raj.)	External Member	22/6/2020
3	Mr. Giriraj Sharma SDE,BSNL, Kota	External Member	22/6/2022
4	Mr. JitendraVaswani, Assistant Professor, Electronics & Comm. Engg.	Internal Member	22/6/2020
5	Mr. Ritesh Kumar Ojha, Assistant Professor, Electronics & Comm. Engg.	Internal Member	22/6/2020
6	Ms. SukritiNuwal, Mathematics Faculty, Sangam School of Excellence, Bhilwara(Raj.)	Alumni	22/6/2020
7	Mr. Gaurav Sharma, Head, Electronics & Comm. Engg.	Convener	22/6/2020

Computer-Aided Design for VLSI

Introduction to course Y Chart- Physical design top down flow- Review of graph theory: complete graph, connected graph, sub graph, isomorphism, bi partite graph tree.
Computational complexity of algorithms Big-O notation- Class P- class NP -NP-hard- NP-complete.
Partitioning Problem formulation- Group Migration Algorithm: Kernighan-Lin Simulated annealing based Partitioning.
Floor planning Stock Meyer algorithm- Wong-Liu algorithm (Normalized polish expression)- Integer Linear Programming (ILP) based floor planning.
Pin Assignment and Placement Pin Assignment: Concentric circle mapping, Topological pin assignment- Power and ground routing.
Placement: Wire length estimation models for placement - Quadratic placement- Sequence pair technique.

BOOKS

Andrew B. Kahng, Jens Lienig, Igor L. Markov, JinHu,VLSI Physical Design: From Graph Partitioning to Timing Closure, Springer, 2011.
S. Sridhar, Design and Analysis of Algorithms, Paperback – OUP, 2014.
H. Yosuff and S.M. Sait, VLSI Physical Design Automation – Theory and Practice, Cambridge India, 2010.
Ganesh M.Magar, Swati R.Maurya Rajesh K.Maurya, Graph Theory & Applications, Technical Publications, 2016.

IC Technology

Crystal Growth Introduction to Semiconductor Manufacturing and fabrication, Clean Room types and Standards, Physics of the Crystal growth, wafer fabrication and basic properties of silicon wafers.

Lithography: The Photolithographic Process, Photomask Fabrication, Comparison between positive and negative photoresists, Exposure Systems, Characteristics of Exposure Systems, E-beam Lithography, X- ray lithography.

Thermal Oxidation of Silicon: The Oxidation Process, Modeling Oxidation, Masking Properties of Silicon Dioxide, Technology of Oxidation, Si-SiO2 Interface.

Diffusion and Ion Implantation: The Diffusion Process , Mathematical Model for Diffusion, Constant- ,The Diffusion Coefficient , Successive Diffusions, Diffusion Systems, Implantation Technology, Mathematical Model for Ion Implantation, Selective Implantation, Channeling, Lattice Damage and Annealing, Shallow Implantations.

Thin film deposition, contacts, packaging and yield: Chemical Vapor Deposition, Physical Vapor Deposition, Epitaxy, Metal Interconnections and Contact Technology, Silicides and Multilayer-Contact Technology, Copper Interconnects and Damascene Processes, Wafer Thinning and Die Separation, Die Attachment, Wire Bonding, Packages, Yield.

MOS Process Integration: Basic MOS Device Considerations, MOS Transistor Layout and Design Rules, Complementary MOS (CMOS) Technology.

BOOKS

S.M. Sze, VLSI technology, Tata McGraw-Hill, Second Edition, 2017.
R.C. Jaeger, Introduction to microelectronic fabrication, Prentice Hall, Second Edition, 2013.
S.A. Campbell, The science and engineering of microelectronics fabrication, Oxford University Press, UK, Second Edition, 2012.
Simon M. Sze, Gary S. May Fundamentals of Semiconductor Fabrication, Wiley, 2011.

6/2020

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Mewar University
Knowledge to Wisdom
Chittorgarh - 312901 (Raj.)

VLSI TESTING AND TESTABILITY

Fault Modelling Importance of Testing - Testing during the VLSI Lifecycle - Challenges in the VLSI Testing: Test Generation - Fault Models - Levels of Abstraction in VLSI Testing - Historical Review of VLSI Test Technology - Functional Versus Structural Testing - Levels of Fault Models - Fault Equivalence - Fault Dominance - Fault Collapsing - Check point Theorem - Delay Fault.

Fault Simulation and Test Generation Fault Simulation: Serial, Parallel, Deductive, Concurrent - Combinational Test Generations -ATPG for Combinational Circuits - D-Algorithm - Testability Analysis - SCOAP measures for Combinational Circuits

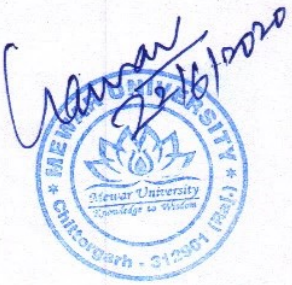
Scan based Testing Design for Testability Basics - Ad Hoc Approach - Structured Approach - Scan Cell Designs - Scan Architectures - Scan Design Rules - Scan Design Flow – Special Purpose Scan Designs - RTL Design for Testability.

Built-in Self-Test BIST Design Rules - Test Pattern Generation - Exhaustive Testing - Pseudo-Random Testing - Pseudo-Exhaustive Testing - Delay Fault Testing - Output Response Analysis - Logic BIST Architectures - BIST Architectures for Circuits with and without Scan Chains

BOOKS

Z.Navabi, Digital System Test and Testable Design, Springer, 2011.

Laung-Terng Wang, Cheng-Wen Wu, and Xiaoqing Wen, VLSI Test Principles and Architectures, The Morgan Kaufmann, 2013.



MEMORY DESIGN AND TESTING

Volatile memories SRAM – SRAM Cell structures, MOS SRAM Architecture, MOS SRAM cell and peripheral circuit operation, SOI technology, Advanced SRAM architectures and technologies, soft error failure in SRAM, Application specific SRAMs, DRAM – DRAM technology development, CMOS DRAM, DRAM cell theory and advanced cell structures, BICMOS DRAM, soft error failure in DRAM, Advanced DRAM design and architecture, Application specific DRAM.

Non-volatile memories Masked ROMs, High density ROM, PROM, Bipolar ROM, CMOS PROMS, EPROM, Floating gate EPROM cell, One time programmable EPROM, EEPROM, EEPROM technology and architecture, Non-volatile SRAM, Flash Memories (EPROM or EEPROM), advanced Flash memory architecture.

Memory Testing and Patterns General Fault Modeling – Read Disturb Fault Model – Precharge Faults – False Write Through Data Retention Faults – Decoder Faults. Megabit DRAM Testing Nonvolatile Memory Modeling and Testing-IDDQ Fault Modeling and Testing Application Specific Memory Testing – Zero/one Pattern – Exhaustive Test Patterns – Walking, Matching and Galloping – Pseudo Random Pattern – CAM pattern.

Design For Test and BIST RAM Built-In Self – Test (BIST)-Weak Write Test mode – Bit Line Contact Resistance – PFET Test – Shadow Write and Shadow Read.

BOOKS

A. K.Sharma, Advanced Semiconductor Memories: Architecture, Design and Applications, John Wiley, 2014.

Roberto Gastaldi and Giovanni Campardo In Search of the Next Memory: Inside the Circuitry from the Oldest to the Emerging Non-Volatile Memories, Springer, 2017.

Fiber Optic Communication (Syllabus)

Introduction to vector nature of light, propagation of light, propagation of light ina cylindrical dielectric rod, Ray model, wave model.
Different types of optical fibers, Modal analysis of a step index fiber.
Signaldegradation on optical fiber due to dispersion and attenuation. Fabrication of fibers and measurement techniques like OTDR.
Optical sources - LEDs and Lasers, Photo-detectors - pin-diodes, APDs, detectorresponsivity, noise, optical receivers. Optical link design - BER calculation, quantum limit, power penalties.
Optical switches - coupled mode analysis of directional couplers, electro-opticswitches.
Optical amplifiers - EDFA, Raman amplifier.
WDM and DWDM systems.Principles of WDM networks.
Nonlinear effects in fiber optic links. Concept of self-phase modulation, groupvelocity dispersion
andsolition based communication.

22/6/2020

Scientific computing (Syllabus)

Introduction: Sources of Approximations, Data Error and Computational, Truncation Error and Rounding Error, Absolute Error and Relative Error, Sensitivity and Conditioning, Backward Error Analysis, Stability and Accuracy.

Computer Arithmetic: Floating Point Numbers, Normalization, Properties of Floating Point System, Rounding, Machine Precision, Subnormal and Gradual Underflow, Exceptional Values, Floating-Point Arithmetic, Cancellation

System of liner equations: Linear Systems, Solving Linear Systems, Gaussian elimination,Pivoting, Gauss-Jordan, Norms and Condition Numbers, Symmetric Positive Definite Systems and Indefinite System, Iterative Methods for Linear Systems

Linear least squares: Data Fitting, Linear Least Squares, Normal Equations Method, Orthogonalization Methods, QR factorization, Gram-Schmidt Orthogonalization, Rank Deficiency, and Column Pivoting.

Wavelets (Syllabus)

Introduction to time frequency analysis; the how, what and why about wavelets, Short-time Fourier transform, Wigner-Ville transform.;Continuous time wavelet transform, Discrete wavelet
transform, tiling of the time-frequency plane and wave packet analysis, Construction of wavelets.
Multiresolution analysis. Introduction to frames and biorthogonal wavelets, Multirate signal processing and filter bank theory, Application of wavelet theory to signal denoising, image and video compression, multi-tone digital communication, transient detection.

Speech and Audio Processing (Syllabus)

Introduction- Speech production and modeling - Human Auditory System;General structure of speech coders; Classification of speech coding techniques – parametric, waveform and hybrid ; Requirements of speech codecs –quality, coding delays, robustness.

Speech Signal Processing- Pitch-period estimation, all-pole and all-zero filters,convolution; Power spectral density, periodogram, autoregressive model, autocorrelation estimation.

Linear Prediction of Speech- Basic concepts of linear prediction; LinearPrediction Analysis of non-stationary signals –prediction gain, examples; Levinson-Durbin algorithm; Long term and short-term linear prediction models; Moving average prediction.

Speech Quantization- Scalar quantization–uniform quantizer, optimum quantizer,logarithmic quantizer, adaptive quantizer, differential quantizers; Vector quantization – distortion measures, codebook design, codebook types.

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/2020/461-A **22nd April 2020**

OFFICE ORDER

Sub.: Reconstitution of Board of Studies for Department of Computer Applications

The Board of Studies for the Department of Computer Applications reconstituted as per Rule 7 of the Statutes of Mewar University, as under:

1) Dr. Tanveer Ahmad Kazi, Dean, Faculty of Computer Science & System Studies - Chairman
2) Mr. Bachcha Lal Pal , Assistant Professor, KNIT, Sultanpur - External Member
3) Dr. Alok Aggarwal, Professor School of Computer Science, University of Petroleum & Energy Studies Bhidoli, Dehradun, Uttarakhand - External Member
4) Mr. M. Rashid, Assistant Professor - Internal Member
5) Mr. Shiv Kumar, Assistant Professor - Internal Member
6) Devi Singh Shekhawat, HR, Chhattisgarh - Alumni
7) Mr. Ravindra Verma, Assistant Professor & Head - Convener

The terms of reference for the Board of Studies are as provided in Rule 7 of the Statutes.
The Chairman of the Board of Studies may associate any member in the meeting, as a special invitee if it is considered his association will contribute to the task of the meeting with the approval of the President/Vice-Chancellor.

The Convener of the Meeting is advised to hold the meeting of the BOS seeking the convenience of the Chairman in the month of June 2020. The proceedings of the meeting may be sent to the VC/Registrar as early as possible.

The External Members shall be entitled for TA/DA and sitting fees as per the norms prescribed by Mewar University.

Registrar
Registrar
Mewar University
Gangrar, (Chittorgarh)

Copy to:

- PS to Hon'ble Chairperson (for kind information)
- PS to Hon'ble President (for kind information)
- PS to Hon'ble Pro-President (for kind information)
- All concerned Deans/Directors/HoDs (for kind information & necessary action)
- Accounts/Examination/Library/Store/Warden/Security/IT Head.
- Coordinator, IQAC Cell.
- Record file.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF COMPUTER APPLICATIONS

DATE: 12.06.2020

Minutes of Meeting of Board of Studies

The Board of Studies Meeting of the Department of Computer Application was held on 12th June 2020 in Room No. 135 at 11:00 am onwards to approve the new/changes in curriculum and Syllabus revision for session 2020-21.

The following members were present: **(Annexure 1)**

1) Dr. Tanveer Ahmad Kazi, Dean, Faculty of Computer Science & System Studies - Chairman
2) Mr. Bachcha Lal Pal , Assistant Professor, KNIT, Sultanpur - External Member
3) Dr. Alok Aggarwal, Professor School of Computer Science, University of Petroleum & Energy Studies Bhidoli, Dehradun, Uttarakhand - External Member
4) Mr. M. Rashid, Assistant Professor - Internal Member
5) Mr. Shiv Kumar, Assistant Professor - Internal Member
6) Devi Singh Shekhawat, HR, Chhattisgarh - Alumni
7) Mr. Ravindra Verma, Assistant Professor & Head - Convener

Mr. RavindraVerma, Head of the Department of Computer Application, warmly welcomed all the board members. The Head also appreciated the presence of outside experts who took the pain and keen interest to attend this meeting.

Agenda 1: To approve minutes of the previous BOS, held on 17-06-2019

Resolution: Minutes of the previous BOS of the Computer Application Department held on 17-06-2019 were discussed and approved.

Agenda 2: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Mr. RavindraVerma (Head, Computer Applications) presented a departmental activity report mentioning all the activities conducted related to curricular development, research and development, faculty development, and Industrial collaboration.

Agenda 3: Review of Existing Programmes/Courses

Resolution:

- The BOS committee decided that no changes in all existing programmes for the upcoming session 2020-21

12/6/20

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

- As per AICTE APH 2020-21, based on this order, the department proposed to change the duration of the MCA program from 3 years to 2 years w.e.f. 2020-21-reg.

Agenda 4: Introduction of New Programmes/Courses

Resolution:

1. Based on the industry demand, BOS committee members decided to offer three new courses for PGDCA Students from the upcoming session 2020-21.**(Annexure 2)**

- Information System Analysis & Design
- UI Technology
- PYTHON Programming

2. Suggestionsreceived from previous BOS committee members, three new courses will be introduced for the upcoming session 2020-21 for BCA students. The courses are mentioned below **(Annexure 3)**

- Java Based Web Stack Technology
- Introduction to Internet of Things
- Introduction to Information Science

3. Suggestionsreceived from previous BOS committee members, three new courses will be introduced for the upcoming session 2020-21 for MCA students. The courses are mentioned below **(Annexure 4)**

- Digital Marketing
- Distributed Db
- Google Analytics

4. Suggestionsreceived from previous BOS committee members, three new courses will be introduced for the upcoming session 2020-21 for BCA-MCA students. The courses are mentioned below **(Annexure 5)**

- Java Based Web Stack Technology
- Big Data Analytic
- Cloud Computing

Agenda 5: To recommend the approved syllabus to Academic Council.

Resolution: Members of the Board of Studies approved the revised syllabus and recommended the same be forwarded to the Academic Council for their approval.

The meeting was dissolved with thanks to the Chair and all the Board of Studies Members.

12/6/20

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF COMPUTER APPLICATIONS

DATE: 12.06.2(

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Dr. Tanveer Ahmad Kazi, Computer Science & System Studies	Chairman	12.06.2020
2	Mr. BachchaLal Pal, Assistant Professor	External Member	12/06/2020
3	Dr. AlokAgarwal, Pacific College of Computer Application, Pacific University, Udaipur, Rajasthan	External Member	
4	Mr. M. Rashid, Assistant Professor,	Internal Member	
5	Mr. Shiv Kumar, Assistant Professor, CSE Dept	Internal Member	12/06/2020
6	Devi Singh Shekhawat, HR, Chhattisgarh	Alumni	Devi Singh 12/06/20
7	Mr. RavindraVerma, Assistant Professor	Convener	12/06/20

SEMESTER – 2

INFORMATION SYSTEM ANALYSIS AND DESIGN - BCA-202

L T P

3 1 0 : 4 Credits: 33 lectures

UNIT-I

Overview of System analysis and design: Development life cycle (Waterfall, Spiral, incremental models), feasibility studies, Requirements determination, Logical design, Physical design, Program design, Risk and feasibility analysis, prototyping Information requirement analysis: 8 Lectures

UNIT-II

Process modeling with physical and logical data flow diagrams, Data modeling with entity relationship diagrams, Normalization upto 3NF : 8 lectures

UNIT-III

System design: Process descriptions, Input/output controls, object modeling, Database design, User Interface design, Documentation, Data Dictionary : 7 lectrues

UNIT-IV

Development methodologies: Top down, bottom up, structured chart, decision table, decision tree, CASE productivity tools. : 4 lectrues

UNIT-V

Testing – Unit, integration, system, Acceptance, regression, Test Case generation:6 lectures

Books:

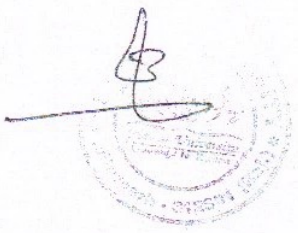
1. System Analysis & Design, Parthasarathi, EPH
2. Analysis & Design of Information Systems,Rajaraman,PHI
3. Analysis & Design of Information Systems, Senn , MH

UI TECHNOLOGY

UNIT - I	**HTML:-** Introduction to HTML, Browsers and HTML, Editor's Offline and Online, Tags, Attribute and Elements, Doctype Element, Comments, Headings, Paragraphs, and Formatting Text, Lists and Links, Images and Tables. **CSS:-** Introduction CSS, Applying CSS to HTML, Selectors, Properties and Values, CSS Colors and Backgrounds, CSS Box Model, CSS Margins, Padding, and Borders, CSS Text and Font Properties, CSS General Topics
UNIT - II	**JavaScript:-** Introduction to JavaScript, Applying JavaScript (internal and external), Understanding JS Syntax, Introduction to Document and Window Object, Variables and Operators, Data Types and Num Type Conversion, Math and String Manipulation, Objects and Arrays, Date and Time, Conditional Statements, Switch Case, Looping in JS, Functions. JQUERRY-jQuery INTRODUCTION, jQuery EFFECTS, jQuery HTML/CSS, jQuery FORMS, jQuery EVENTS, jQuery MISILLANEOUS
UNIT - III	**ReactJS**:-Introduction, Templating using JSX, Components, State and Props, Lifecycle of Components, Rendering List and Portals, Error Handling, Routers, Redux and Redux Saga, Immutable.js, Service Side Rendering Unit Testing, Webpack
UNIT - IV	**BOOT STRAP-** **BOOTSTRAP- INTRODUCTION, CONTAINER, BOOTSTRAP BUTTON, BOOTSTRAP TABLE, BOOTSTRAP FORMS, BOOTSTRAP NAVIGATION BAR, BOOTSTRAP LIST, BOOTSTRAP TABS, BOOTSTRAP MODALS, BOOTSTRAPDROP DOWN**
Reference Books	• .NET-based Stack: ASP.NET Core 3 and Angular 9 • The Full Stack Developer: Your Essential Guide to the Everyday Skills Expected of a Modern Full Stack Web Developer by Chris Northwood • Modern Full-Stack Development: Using TypeScript, React, Node.js, Webpack, and Docker by Frank Zammetti • Hands-On Full Stack Development with Spring Boot 2 and React by Juha Hinkula

Introduction to Python Programming

Unit –I	Introduction to Python, use IDLE to develop programs, Basic coding skills, working with data types and variables, working with numeric data, working with string data, Python functions, Boolean expressions, selection structure, iteration structure, Illustrative Programs, Exercises
Unit –II	Define and use functions and modules, working with recursion, Basic skills for working with lists, work with a list of lists, work with tuples, work with dates and times, get started with dictionaries, Illustrative programs, Exercises.
Unit –III	An introduction to file I/O, use text files, use CSV files, use binary files, Handle a single exception, handle multiple exceptions, Illustrative programs, Exercises, Object Oriented Programming, An introduction to classes and objects, define a class, work with object composition, work with encapsulation, work with inheritance, override object methods, Illustrative programs, Exercises
Unit –IV	An introduction to relational databases, SQL statements for data manipulation, Using SQLite Manager to work with a database, Using Python to work with a database, Creating a GUI that handles an event, working with components, Illustrative programs, Exercises
Reference Book	• Learning Python, 5th Edition,Mark Lutz • 'Head-First Python' by Paul Barry • Elements of Programming Interviews in Python: The Insiders' Guide • Learning Python, 5th Edition



JAVA BASED WEB STACK TECHNOLOGY

UNIT-1

Client & server side programming. Enterprise architecture styles: Single tier , 2-tier , 3-tier, n-tier; Relative comparison of the different layers of architectures.

MVC Architecture: Explanation, Need, Drawbacks, J2EE WEB SERVICES, Different components & containers.

UNIT-2

Servlet: Introduction, Advantages over CGI, How it works?, Servlet life cycle, Servlet API (Different interfaces & classes of generic servlet & HTTP servlet), Accessing user information by means of Request & Response, Servlet session management techniques and relative comparison.

UNIT-3

JSP: Introduction, Comparison between JSP & servlet., Architecture/Life cycle, Different types of JSP architectures and relative comparison.; JSP tags ,Directives, Scripting elements, Actions; JSP implicit objects, Accessing user information using implicit objects.

UNIT-4

EJB :Introduction, Comparison of EJB & Java Beans , Applications, Drawbacks, Different types of enterprise beans, Services provided by EJB container.

RMI: Introduction and applications, Architecture ,Use of RMI Registry.

JNDI: Introduction and applications, Comparison between LDAP and JNDI

JDO (Java Data Objects): Introduction, Integration of EJB and JDO, JDO & RMI

UNIT-5

JINI :Introduction, Applications

JDBC: Introduction, Database driver ,Different approaches to connect an application to a database server, Establishing a database connection and executing SQL statements, JDBC prepared statements, JDBC data sources.

XML: Java & XML, XML syntax, Document type definition., Parsers, SAX parsers, DOM parsers, SAX vs. Dom, JAXP and JAXB.

Text :

1. "Professional JAVA Server Programming", Allamaraju and Buest ,SPD Publication

2. "Beginning J2EE 1.4" Ivor Horton, SPD Publication.

3. "Advanced Programming for JAVA 2 Platform" Austin and Pawlan, Pearson

Reference Books:

1. Internet & Java Programming by Krishnamoorthy & S. Prabhu(New Age Publication)

Introduction to Internet of Things

UINT-1

What is IoT, how does it work? Difference between Embedded device and IoT device, Properties of IoT device, IoT Ecosystem, IoT Decision Framework, IoT Solution Architecture Models, Major IoT Boards in Market, Privacy issues in IOT

UNIT-2

Setting Up Raspberry Pi/Arduino to Create Solutions Explore Raspberry Pi, setting up Raspberry Pi, showing working of Raspberry Pi using Secure Shell (SSH) Client and Team Viewer, Understand Sensing actions, Understand Actuators and Microelectromechanical Systems (MEMS).

UNIT-3

Communication Protocols in IoT Types of wireless communication, Major wireless Short-range

communication devices, properties, comparison of these devices (Bluetooth, Wireless Fidelity (WiFi), ZigBee, Low-power Wireless Personal Area Network (6LoWPAN)), Major wireless Long-range communication devices, properties, comparison of these devices (Cellular IoT, Low-Power Wide-Area Network (LPWAN))

UNIT-4

IoT Applications Industrial Internet 4.0, Applications such as: Smart Homes, Wearables, Smart City, Smart Grids, Connected Car, Connected digital health, telehealth, telemedicine), smart retail

UNIT-5

Sensors ,Applications of various sensors: Google Maps, Waze, WhatsApp, Ola Positioning sensors: encoders and accelerometers, Image sensors: cameras Global positioning sensors: Global Positioning, System (GPS), Global Navigation Satellite System (GLONASS),

Indian Regional Navigation Satellite System (IRNSS), Galileo and indoor localization systems, Motion & Orientation Sensors:

Accelerometer, Magnetometer, Proximity Sensor, Gyroscope,

Calibration, - noise modelling and characterization, and - noise

filtering and sensor data processing, Privacy & Security

REFERENCES

1. Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Handson- Approach)", VPT, 1st Edition 2014

2. Francis daCosta, "Rethinking the Internet of Things: A Scalable Approach to Connecting Everything", Apress Publications, 1st Edition

2013

3. CunoPfister, "Getting Started with the Internet of Things", OReilly Media 2011

4. Kyung, C.-M., Yasuura, H.,' Liu, Y., Lin, Y.-L., Smart Sensors and Systems, Springer International Publishing 2015

Introduction to Information Science

UNIT-1

Introduction, Data, Information, Knowledge, The Internet, The WorldWide Web Web Search Engines, User Needs

UNIT-2

Search Strategies, Social Networks, Enterprise Information Systems, Data as an Asset

UNIT-3

Data Modeling, Relational Databases, Content Management Systems, Linked Open Data, Data Mining

UNIT-4

. Collaboration Support, Information Institutions, Information Professions, Digital Governance, Information Security

UNIT-5

Privacy, The Filter Bubble, Ethical Design and Ethical Use Sr. No. Book Detail Year of

BOOKS:

1. Introduction to Information Science by David BawdenLyn Robinson,

FaCet publication 2019

2. Introduction to Information Technology by V. RajaRaman, PHI learning 2020

3. Introduction to Information Systems by Brin , McGraw Hill 2019

Digital Marketing

UNIT – I

Digital marketing, Understanding the Marketing Process, Increasing Visibility, Types of visibility, Examples of visibility, Visitor Engagement, Bringing Targeted Traffic, Inbound, Outbound, Understanding Conversion Process, Retention, Types of Retention, Performance Evaluation, Tools Needed.

UNIT – II

Understanding Internet, Difference between Internet & Web, understanding websites and domain names, extensions, Web server & web hosting, different types of web servers, Planning and

conceptualizing a website, building website using CMS in Class.

UNIT– III

Understanding Google Analytics, set up Analytics account, add Analytics code in a website, understanding goals and conversions, setup goals, understanding bounce rate, Difference between bounce rate and exit rate, reduce bounce rate, Monitoring traffic sources.

UNIT– IV

Marketing on Social networking websites, viral marketing and its importance, Facebook Marketing, Twitter Marketing, Linkedln Marketing, Google plus Marketing, Video Marketing, Pinterest Marketing.

UNIT – V

Introduction to SEO and its importance ,Google AdWords overview, Understanding AdWords Algorithm, creating search campaigns, Creating Ads, Tracking performance/conversion, Optimizing Search Campaigns, Creating Display Campaign.

Text Books

1. Michael Solomon and Tracy Tuten, Social Media Marketing, Pearson,2013

2. Scial Media Marketing for Beginners: Create Successful Campains, Gain more

Fans and boost sales from any social network by F.R.Media, 2/e, June 2014

Reference Books

1. Jan Zimmerman and Deborah Ng. Social Media Marketing All in one for

Dummies, 2012

2. Douglas A.Norman, The Design of Everyday Things, Apr, 2011

3. Jack Z.Scissors and Roger B.Baron Advertising Media Planning, 2010

4. Bhatia Punit, Fundamentals of Digital Marketing, Pearson, 2017

5. Ian Doodson, The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaign, Wiley, 2016

Distributed Database

Module I

Distributed DBMS features and needs. Reference architecture. Levels of distribution transparency, replication. Distributed database design - fragmentation, allocation criteria.

Module II

Storage mechanisms. Translation of global queries. / Global query optimisation. Query execution and access plan.

Concurrency control - 2 phases locks. Distributed deadlocks. Time based and quorum based protocols. Comparison.

Reliability- non-blocking commitment protocols.

Module III

Partitioned networks. Checkpoints and cold starts. Management of distributed transactions- 2 phase unit protocols. Architectural aspects. Node and link failure recoveries.

Module IV [

Distributed data dictionary management. Distributed database administration. Heterogeneous databases-federated database, reference architecture, loosely and tightly coupled.

Alternative architecture. Development tasks, Operation- global task management. Client server databases-SQL server, open database connectivity. Constructing an application.

Books:

1. Database System Concepts, Silberschatz Korth, Sudarshan, MH

2. Distributed Database, Tannenbaum, Pearson

3. Principles of Distributed Database Systems, M. Tamerozsu Patrick Valduriez, Pearson

3. Database Management Systems,Ramakrishnan, MH

4. Beginning SQL Server 2000 programming, Dewson,SPD/WROX

6. Database Management Systems, Leon, VIKAS

7. My SQL :Enterprise Solutions, Alexender Pachev, Wiley Dreamtech

GOOGLE ANALYTICS

UNIT-1

Introduction to Google Analytics- What is Web Analytics, Intro to Google Analytics, How Google Analytics Works, Why Web Analytics Matter

Questions Google Analytics Answers, The Role of Analytics in Your Buyers Journey

UNIT-2

Developing a Google Analytics Strategy, Intro to Measurement Plans, The Importance of Measurement Plans, Who Should be Involved in Creating a Measurement Plan?

Framework for Developing a Measurement Plan

UNIT-3

Best Practices for Setting Up a Google Analytics Account-How to install Google Analytics Tracking Code, How to test to confirm codes are installed and tracking correctly

Understanding the structure of your Google Analytics Account, Introduction to Views in Google Analytics, Google Analytics account limits

Understanding account users and permissions, Important Google Analytics configurations

UNIT-4

Introduction to Filters-Understanding Google Analytics filters, Google Analytics filter types, How to setup Google Analytics filters?

Conversion Tracking- What is conversion tracking? What are goals? How to setup goals, Important configurations for tracking ecommerce transactions

An overview of the Google Analytics Dashboard- An overview of reports, Understanding dimensions & metrics

REFERENCES

Google Analytics- Justin Cutroni, O'Reilly Media, Incorporated, USA, 2014

JAVA BASED WEB STACK TECHNOLOGY

UNIT-1

Client & server side programming. Enterprise architecture styles: Single tier , 2-tier , 3-tier, n-tier; Relative comparison of the different layers of architectures.

MVC Architecture: Explanation, Need, Drawbacks, J2EE WEB SERVICES, Different components & containers.

UNIT-2

Servlet: Introduction, Advantages over CGI, How it works?, Servlet life cycle, Servlet API (Different interfaces & classes of generic servlet & HTTP servlet), Accessing user information by means of Request & Response, Servlet session management techniques and relative comparison.

UNIT-3

JSP: Introduction, Comparison between JSP & servlet., Architecture/Life cycle, Different types of JSP architectures and relative comparison.; JSP tags ,Directives, Scripting elements, Actions; JSP implicit objects, Accessing user information using implicit objects.

UNIT-4

EJB :Introduction, Comparison of EJB & Java Beans , Applications, Drawbacks, Different types of enterprise beans, Services provided by EJB container.

RMI: Introduction and applications, Architecture ,Use of RMI Registry.

JNDI: Introduction and applications, Comparison between LDAP and JNDI

JDO (Java Data Objects): Introduction, Integration of EJB and JDO, JDO & RMI

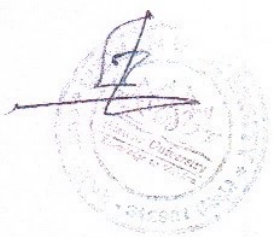
UNIT-5

JINI :Introduction, Applications

JDBC: Introduction, Database driver ,Different approaches to connect an application to a database server, Establishing a database connection and executing SQL statements, JDBC prepared statements, JDBC data sources.

XML: Java & XML, XML syntax, Document type definition., Parsers, SAX parsers, DOM parsers, SAX vs. Dom, JAXP and JAXB.

Text :



1. "Professional JAVA Server Programming", Allamaraju and Buest ,SPD Publication

2. "Beginning J2EE 1.4" Ivor Horton, SPD Publication.

3. "Advanced Programming for JAVA 2 Platform" Austin and Pawlan, Pearson

Reference Books:

1. Internet & Java Programming by Krishnamoorthy & S. Prabhu(New Age Publication)

BIG DATA ANALYTICS

UNIT I :

INTRODUCTION TO BIG DATA AND HADOOP Types of Digital Data, Introduction to Big Data, Big Data Analytics, History of Hadoop, Apache Hadoop, Analysing Data with Unix tools, Analysing Data with Hadoop, Hadoop Streaming, Hadoop Echo System, IBM Big Data Strategy, Introduction to Infosphere BigInsights and Big Sheets.

UNIT II :

HDFS(Hadoop Distributed File System) The Design of HDFS, HDFS Concepts, Command Line Interface, Hadoop file system interfaces, Data flow, Data Ingest with Flume and Scoop and Hadoop archives, Hadoop I/O: Compression, Serialization, Avro and File-Based Data structures.

UNIT III :

Map Reduce Anatomy of a Map Reduce Job Run, Failures, Job Scheduling, Shuffle and Sort, Task Execution, Map Reduce Types and Formats, Map Reduce Features.

Unit IV :

Hadoop Eco System Pig : Introduction to PIG, Execution Modes of Pig, Comparison of Pig with Databases, Grunt, Pig Latin, User Defined Functions, Data Processing operators. Hive : Hive Shell, Hive Services, Hive Metastore, Comparison with Traditional Databases, HiveQL, Tables, Querying Data and User Defined Functions. Hbase : HBasics, Concepts, Clients, Example, Hbase Versus RDBMS. Big SQL : Introduction

UNIT V :

Data Analytics with R Machine Learning : Introduction, Supervised Learning, Unsupervised Learning, Collaborative Filtering. Big Data Analytics with BigR.

Text Books

- Tom White " Hadoop: The Definitive Guide" Third Edit on, O'reily Media, 2012.
- Seema Acharya, Subhasini Chellappan, "Big Data Analytics" Wiley 2015.

References

- Michael Berthold, David J. Hand, "Intelligent Data Analysis", Springer, 2007.
- Jay Liebowitz, "Big Data and Business Analytics" Auerbach Publications, CRC press (2013)
- Tom Plunkett, Mark Hornick, "Using R to Unlock the Value of Big Data: Big Data Analytics with Oracle R

Enterprise and Oracle R Connector for Hadoop", McGraw-Hill/Osborne Media (2013), Oracle press.

• Anand Rajaraman and Jef rey David Ulman, "Mining of Massive Datasets", Cambridge University Press,

2012.

• Bill Franks, "Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics", John Wiley & sons, 2012.

• Glen J. Myat, "Making Sense of Data", John Wiley & Sons, 2007 • Pete Warden, "Big Data Glossary", O'Reily, 2011.

• Michael Mineli, Michele Chambers, Ambiga Dhiraj, "Big Data, Big Analytics: Emerging Business Intelligence and Analytic Trends for Today's Businesses", Wiley Publications, 2013.

• ArvindSathi, "BigDataAnalytics: Disruptive Technologies for Changing the Game", MC Press, 2012

• Paul Zikopoulos ,Dirk DeRoos , Krishnan Parasuraman , Thomas Deutsch , James Giles , David Corigan ,

Cloud Computing

UNIT-I	Introduction: Cloud-definition, benefits, usage scenarios, History of Cloud Computing - Cloud Architecture Types of Clouds - Business models around Clouds – Major Players in Cloud Computing - issues in Clouds - Eucalyptus - Nimbus – Open Nebula, Cloud Sim.
UNIT-II	Cloud Services: Types of Cloud services: Software as a Service - Platform as a Service – Infrastructure as a Service - Database as a Service - Monitoring as a Service – Communication as services. Service providers- Google, Amazon, Microsoft Azure, IBM, Sales force Collaborating Using Cloud Services: Email Communication over the Cloud – CRM Management - Project Management-Event Management - Task Management – Calendar - Schedules - Word Processing – Presentation Spreadsheet - Databases – Desktop – Social Networks and Groupware
UNIT-III	Virtualization For Cloud: Need for Virtualization – Pros and cons of Virtualization – Types of Virtualization –System Vm, Process VM, Virtual Machine monitor – Virtual machine properties - Interpretation and Binary translation, HLL VM - Hypervisors – Xen, KVM, VMWare, Virtual Box, Hyper-V.
UNIT-IV	Security, Standards And Applications: Security in Clouds: Cloud security challenges – Software as a Service Security, Common Standards: The Open C loud Consortium – The Distributed management Task Force – Standards for application Developers – Standards for Messaging – Standards for Security End user access to cloud computing, Mobile Internet devices and the cloud.
Reference Books	Explain the Cloud Like I'm 10 Cloud Computing For Dummies Cloud Computing: Concepts, Technology & Architecture Infrastructure as Code

OFFICE OF REGISTRAR

MEWAR UNIVERSITY, GANGRAR CHITTORGARH RAJ

Ref. No.: MU/RO/2020/ 450-A **25th March 2020**

OFFICE ORDERS

Sub: Reconstitution of Board of Studies for Departments of Electrical Engineering

The Board of studies for Department of Electrical Engineering is reconstituted as per rule 7 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) Tanveer Ahmed Kazi (Dean of Engineering) -Chairman
2) Prof. (Dr.) Vinesh Agarwal, Sangam university, Bhilwara - External Member
3) Mr. Satyadeo Vyas, Energy Manager & Auditor, General Manager (E&I Dept.) Birla Cement Works, Chittorgarh - External Member
4) Mr. Mantosh Kumar, Assistant Professor - InternalMember
5) Mr. Rajkiran B, Assistant Professor - Internal Member
6) Mr. Deepak Kumar Joshi, HOD - Internal Member
7) Mr. V. Siva Brahmaiah Rama(HOD,EE) -Convener

The terms of reference for the Board of Studies are as provide in rule 7 of the Statutes.

The chairman of the Board of Studies may associate any member in the meeting, as special invitee if it is that considered his/her association will contribute in the task of the meeting, with the approval of the President/ Vise Chancellor.

The Convener of the meeting is advised to hold the meeting of the BOS seeking Convenience of the Chairman before the end of June, 2020. The proceeding of the meeting may send to the VC/ Registrar as early as possible.

The External Member shall be entitled for TA/DA and sitting fees as per the norms prescribed by the Mewar University.

Registrar
Registrar
Mewar University
Gangrar, (Chittorgarh)

Copy To:

1) Ps To Hon'ble Chairperson for kind information
2) Secretary, MES & Member, BOM for kind information
3) To President for kind information
4) Ps To Pro President for kind information
5) Dean/HODs/COE/Research/Stores/it/etc

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF ELECTRICAL ENGINEERING

DATE: 10.06.2020

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department of Electrical Engineering meeting held on 10-06-2020 in Room No. 211 at 11.30 AM.

The following members were present: **(Annexure 1)**

1) Prof. (Dr.) Tanveer Ahmed Kazi (Dean of Engineering) -Chairman
2) Prof. (Dr.) Vinesh Agarwal, Sangam University, Bhilwara - External Member
3) Mr. Satyadeo Vyas, Energy Manager & Auditor, General Manager (E&I Dept.) Birla Cement Works, Chittorgarh - External Member
4) Mr. Mantosh Kumar, Assistant Professor - Internal Member
5) Mr. Rajkiran B, Assistant Professor - Internal Member
6) Mr. Deepak Kumar Joshi, HOD - Internal Member
7) Mr. V. Siva Brahmaiah Rama(HOD, EE) - Convener

At the outset, Mr. V. Siva Brahmaiah Rama, Head of the Department of Electrical Engineering, warmly welcomed all the board members. The Head also appreciated the presence of outside experts who took the pain and keen interest to attend this meeting.

Agenda 1: To approve minutes of the previous BOS, held on 06-06-2019

Resolution: Minutes of the previous BOS of the Electrical Engineering Department held on 06-06-2019 were discussed and approved.

Agenda 2: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Dr. V. Siva Brahmaiah (Head, Electrical Engineering) presented a departmental activity report mentioning all the activities conducted related to the curricular development such as the lecture plan, two-way teaching theory in the form of ACP, seminars, workshops, guest lecture, research development, faculty development and industrial collaboration.

Agenda 3: Review of Existing Programmes/Courses

Resolution: The Committee reviewed the scheme and syllabus of B. Tech (Electrical Engineering) for the session 2020-21. **(Annexure 2)**

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Agenda 4: Introduction of New Programmes/ Course

Resolution:

1. The BOS Committee approved the syllabus of five new courses in B. Tech. Electrical Engineering from sessions 2020-21 is mentioned below. **(Annexure 3)**
   - Linear Integrated Circuits
   - Database Management System
   - Telemetry & Data Acquisition System
   - Plc & Scada Systems
   - Sensors And Transducers
2. Addition of a New Departmental Elective Course in M.Tech (Renewable Energy and Power System Engineering) were introduced for the upcoming session 2020-21. **(Annexure 4)**

S.No.	Program Code	Course Name
1	M.Tech-RE	Unit Operations In Industries
2	M.Tech-PSE	Modeling And Simulation Of Dynamic Systems
3	M.Tech-PSE	Smart Grid Design And Analysis

Agenda 5: Any other suggestions by BOS Committee

Resolution: Further based on suggestions of Dr. Vinesh Agarwal, Professor (Sangam University) & Mr. Satyadeo Vyas (Energy Manager & Auditor, General Manager, E&I Dept.) BCW, Chittorgarh, it is decided to include the IOT/AI/Data Structure/Computer Related Language course should be added in an Elective Course &another Suggestion given at least One MOOC (NPTEL/IIT) Course Should be added & Compulsory for all the Students & Count as a Credit Course.

Agenda 6: To recommend the approved syllabus to Academic Council.

Resolution: Members of the Board of Studies approved the revised syllabus and recommended the same be forwarded to the Academic Council for their approval.

The meeting was dissolved with thanks to the Chair and all the Board of Studies Members.

R.V.S. Bhati

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.) Mewar University Knowledge to Wisdom

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH
(RAJ.)DEPARTMENT OF ELECTRICAL ENGINEERING

DATE: 10.06.2020

Annexure I Attendance Sheet

SN	Name	Designation	Post	Signature
1	Prof.(Dr.) Tanveer Ahmed Kazi	Dean of Engineering & Technology	Chairman	10/6/20
2	Prof. (Dr.) Vinesh Agarwal	Professor (Sangam University)	External Member	10/6/20
3	Mr. Satyadeo Vyas	Energy Manager & Auditor, General Manager (E&I Dept.) Birla Cement Works, Chittorgarh	External Member	10/6/20
4	Mantosh Kumar	Assistant Professor	Internal Member	10/6/20
5	Rajkiran B	Assistant Professor	Internal Member	
6	Mr. Deepak Kumar Joshi	Assistant Professor	Internal Member	10/6/20
7	Dr. V. Siva Brahmaiah	Assistant Professor &HOD	Convener	10/6/20

LINEAR INTEGRATED CIRCUITS

Operational Amplifiers: Basic differential amplifier analysis, Single ended and double ended configurations, Op-amp configurations with feedback.

Operational Amplifier Applications: Integrator, Differentiator, Voltage to frequency & Frequency to voltage converters.

Oscillators: Phase shift, Wien Bridge, Quadrature, square wave, triangular wave, saw tooth oscillators. Voltage controlled oscillators.

Active Filters: Low pass, high pass, band pass and band reject filters, all pass filter. Switched capacitor filter, Butterworth filter design, Chebyshev Filter design.

Phase-Locked Loops: Operating Principles of PLL, Linear Model of PLL, Lock range, Capture range, Applications of PLL as FM detector, FSK demodulator. AM detector, Frequency translator, phase shifter, tracking filter, signal synchronizer and frequency synthesizer, Building blocks of PLL, LM565 PLL.

Linear IC's: Four quadrant multiplier & its applications, Basic blocks of linear IC voltage regulators, three terminal voltage regulators, Positive and negative voltage regulators. The 555 timer as astable and monostablemultivibrators. Zero crossing detector, Schmitt trigger.

Text Books:-

1. R. A. Gayakwad - Op-amplifiers & Linear ICs, Pearson Education, 2007

2. J. M. Jacob – Applications & Design with Analog Integrated Circuits, Prentice Hall of India, 2010

Reference Books

1. Ramakalyan: LINEAR CIRCUITS (Includes CD), Oxford, 2004

2. K. R. Botkar – Integrated Circuits, Khanna Publications, 2011

3. Salivahanan: Linear Integrated Circuits (TMH), 2010

4. S. M. Sze – VLSI Technology, Tata Mc-Graw Hill, 2006

5. D. Nagchoudhary – principles of Microelectronic Technology, Wheeler Publishing.

6. Stephen A Campbell – The Science and Engineering of Microelectronic Fabrication, Oxford, 2001

7. Hong Xiao – Introduction to Semiconductor Manufacturing, Prentice Hall India, 2012

Head
Department of
Electrical Engineering
Mewar University, Chittorgarh (Raj.)

DATA BASE MANGEMENT SYSTEM

Introduction, need, purpose and goals of DBMS. DBMS Architecture, Concept of keys, Generalization and specialization, introduction to relational data model, ER modeling, concept of ER diagram

Database Design: Conceptual Data Base design. Theory of normalization, Primitive and composite data types, concept of physical and logical databases, Data abstraction and data independence, relational algebra and relational calculus.

SQL, DDL and DML. Constraints assertions, views database security. Application Development using SQL: Host Language interface embedded SQL programming. GL's, Forms management and report writers. Stored procedures and triggers. Dynamic SQL, JDBC.

Internal of RDBMS: Physical data organization in sequential, indexed, random and hashed files. Inverted and multi list structures

(i) Transaction Management: Transaction concept, transaction state, serializability, conflict serializabiltiy, views serializability. **(ii) Concurrency Control:** Lock based protocol **(iii) Deadlock Handling:** Prevention detection, recovery. (iv) **Recovery System:** Log based recovery.

Text Books

1. Silverschatz Korth and Sudarshan: Database System Concepts, 6th ed., MGH, 2011

2. Raghu Rama Krishnan: Database Management Systems, 2nd ed., MGH, 2003

Reference Books

1. S. K Singh: Database System Concepts, Designs and Applications, Pearson Education, 2011.

2. Elmasari: Fundamentals of Data Base Systems, Pearson Education, 2003.

3. G. K. Gupta: Database Management Systems, MGH, 2011.

4. Date C. J.: An Introduction To Database System, Addition Wesley, 2003.

5. Alex Berson & Stephen J. Smith: Data Warehousing, Data Mining & OLAP, MGH, 2011.

6. Mallach: Data Warehousing System, MGH, 2003.

7. Majumdar & Bhattacharya: Database Management System, MGH, 2011.

TELEMETRY & DATA ACQUISITION SYSTEM

Telemetry Concepts Introduction: Methods of data transmission, general telemetry system, types of telemetry systems, voltage, current, position, landline, radio frequency telemetry systems. Sampling fundamentals: Introduction to sampling theorem and sampling process, convolution, computing minimum sampling rate, Aliasing Errors. Digital Modulation Techniques: AM, FM, Review of PCM, DPCM, DM code converters, PSK, QPSK, FSK, Probability of error, Phase ambiguity Resolution and differential encoding, Error detection, Error correction, Error correcting codes.

Data Communication Systems Data Transmission system: Methods of binary data transmission, data formats, Block schematic, Sensors, Signal conditioners, Multiplexing – high level and low level, ADC – Range and Resolution, Word Format, Frame format, Frame of Synchronizer codes, RF links, X24, RS422, RS423, RS232C interfaces, Multi terminal configuration, Multiplier & concentrator, Data Modems, Data transmission over telephone lines, power line carrier communication. Data reception systems: Bit Synchronizers, Frame Synchronizers, Sub frame Synchronizers, PLL, Display System.

Remote Control: Communication Based Processing Control Systems, Pipelines, Operational security system components, Pipeline control, Power system control, Programmable controllers for factory automation. Command: Tone Command system, Tone Digital Command system, ON/OFF command and Data commands. Aerospace Telemetry: Signal Formation and Conversion, Multiplexing Techniques in Telecontrol installations, Reliability in Telecontrol installations. Optoelectronics/Fiber cable based scheme.

Data Acquisition System (DAS): Introduction, Analog and digital data acquisition system, Importance of DAS, building blocks of DAS, sample and hold circuits, A/D, D/A, multiplexer . Microprocessor based DAS.

Text Books:

1. Patranabis, —Telemetry Principlesl, TMH.

2. H. Rosemary Taylor, —Data Acquisition for Sensor Systemsl, Chapman & Hall

Reference Books:

1. William Schweber, —Data Communication,l TMH Edition-1999

2. Frank Cardon, Russell Jedlicka and Robert Henry, —Telemetry Systems Engineeringl Artech House, Boston, London

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PLC & SCADA SYSTEMS

Programmable Logic Controller (PLC) Basics: Introduction, Parts of PLC, Principles of operation, PLC size and applications, PLC Advantages and Disadvantages, PLC Manufacturers, PLC hardware components, I/O section, Analog I/O modules, Digital I/O modules, CPU-Processor memory module, Programming devices, Devices which can be connected to I/O modules, Relay, Contactor, SPST, Push Buttons, NO/NC Concept.

Programming of Programmable Logic Controller: General PLC Programming Procedures, Contacts and Coils, Program SCAN, Programming Languages, Ladder Programming, Relay Instructions, Instruction Addressing, Concept of Latching, Branch Instructions, Contact and Coil I/O Programming Examples, Relation of Digital Gate Logic to Contact/Coil Logic.

Programmable Logic controller Functions:

Timer Instructions: ON DELAY Timer and OFF DELAY timer, Counter Instructions: UP/DOWN Counters, Timer and Counter Applications, Program Control Instructions: Master Control Reset, Jump and Subroutine, Math Instructions- ADD, SUB. Data Handling: Data Move, Data Compare, Data Selection, Electro-pneumatic Sequential Circuits and Applications.

SCADA: Definition of SCADA, Applicable Processes, Elements of SCADA System, A Limited Two-Way System. Real Time Systems: Communication Access and Master-Slave determining scan interval. Introduction to Remote Control, Communications-A/D Conversion, Long Distance Communication, Communication System components in brief- Protocol, Modems, Synchronous/Asynchronous telephone cable/radio, Half Duplex, Full Duplex System, Brief introduction to RTU and MTU, Applications-Automatic Control, Advisory Applications.

Text Books:

1. Frank D. Petruzella —Programmable Logic Controllersǁ, McGraw-Hill Book Company.

2. John w. Webb and Ronald A. Reis, —Programmable Logic Controllersǁ, PHI

Reference Books:

1. Stuart A.Boyer —Supervisors Control and Data Acquisitionǁ, ISA

2. William I. Fletcher —An Engineering Approach to Digital Designǁ, PHI.

3. Simpson, Colin —Programmable Logic Controllersǁ, Englewood Cliffs NJ PHI.

4. Gray Dunning, —Introduction to Programmable Logic Controllersǁ, Delmar Thompson Learning

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SENSORS AND TRANSDUCERS

Introduction to Sensors: - Definition and differences of sensors and transducers, Classification, static and dynamic characteristics, electrical characterization, mechanical and thermal characterization including bath-tub curve.

Different Sensors: Mechanical & Electromechanical: Potentiometer, Strain gauges, Inductive sensors—Ferromagnetic type, Transformer type, Electromagnetic, Capacitive sensors— parallel plate, variable permittivity, electrostatic, piezoelectric, Introduction to PZT family.

Thermal sensors: Gas thermometric sensors, Dielectric constant, refractive index thermo-sensors, nuclear thermometers, resistance change type thermometric sensors, Thermo emf sensors.

Magnetic sensors: Basic working principles, Magnetostrictive, Hall effect, Eddy current type, SQUID sensors.

Radiation sensors: Photo-detectors, Photo-emissive, photomultiplier, scintillation detectors.

Electro-analytical sensors: Electrochemical cell, SHE, Polarization, Reference electrode, Metal electrodes, Membrane electrodes, Electroceramics. Advancement in Sensor technology: Introduction to smart sensors, Film sensors, Introduction to semiconductor IC technology and Micro Electro Mechanical System(MEMS), Nanosensors. Bio-Sensors.

Different Transducers: LVDT, RTD, Thermistor, Wire anemometer, piezo-resistors, Variable diaphragm capacitance transducers, Angular movement transducers, seismic mass transducer, interferometer transducer. Feedback transducer system: Inverse transducer, Self-balancing transducer, Servo-operated manometer, Feedback pneumatic load cell, integrating servo.

Text Books:

1. D. Patranabis, —Sensors and Transducers‖, PHI Learning Pvt. Ltd., 2nd edition

2. D V S Murty, —Transducers and Instrumentation‖, PHI Learning Pvt. Ltd.

Reference Book:

1. E.O.Doebelin,Dhanesh N Manik, —Measurement Systems‖,6th Edition,Mcgraw Hill Edu.

2. John P. Bentely, —Principles of Measurement System‖, 4th Edition, Pearson Prentice Hall

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UNIT OPERATIONS IN INDUSTRIES

UNIT - I CRUSHING, GRINDINGSIZE SEPARATION & CONVEYING OF BULK SOLIDS

Various Laws of Crushing – classification of crushing and grinding machineries – Coarse crushers – Intermediate crushers – fine grinders – jaw crusher – Gyratory Crusher – Crushing rolls – Hammer mills – Ball and tube mills – Ultrafine grinders – Closed circuit grinding – Grindability Index. Introduction – characterization of solid particles – standard screens – screen analysis – Types of screening equipments – Air separation methods – Cyclone and bag filters – Size separation by settling - Laws of Settling – Classifiers – Material separation by difference in density – Heavy media cyclone - Froth floatation – Hindered settling – working of thickener. Conveying of bulk solids – conveyor of bulk materials – screw conveyors – Belt conveyors – Bucket Elevators – Pneumatic Conveyers.

UNIT - II MIXING AND FILTRATION

Introduction – mixing of liquids/Liquids, Liquids/Gases, Liquids/Solid – Types of mixers – various mixing equipments – Power requirement for an Impeller Mixer. Theory of Industrial filtration – Constant pressure and constant rate filtration – Filter Aids – Filtration Equipment Classification – Filter Presses – Leaf Filters – Rotary Drum Filter – Centrifuges

UNIT - III EVAPORATION

Introduction – Duhrings Chart – Boiling Point Elevation – Capacity and Economy of Evaporators – Evaporators Classification – Short tube and Long Tube Evaporators – Forced Circulation Evaporators – Climbing and Falling Film Evaporators – Multiple Effect Evaporator – Evaporator Accessories

UNIT - IV HUMIDIFICATION AND DRYING

Definition – Adiabatic Saturation Temperature – Humidity Chart – Wet bulb Temperature and Measurement of Humidity – Spray Ponds and Cooling Towers – Cooling Tower Designing considerations. Introduction – Drying Theory – Equilibrium Moisture Content – Bound, Unbound, Free Moisture – Drying Rate Curves – Constant Drying Rate – Falling Rate Period – Classification of Dryers – Tray Dryers – Rotary Dryers – Turbo Dryer – Cylinder Dryer – Festoon Dryer – Drum Dryer – Spray Dryer – Fluid Bed Dryer

UNIT - V DISTILLATION

Introduction – Various Distillation Methods – Flash Distillation – Batch Distillation – Steam Distillation – Continuous Distillation – Minimum Reflux Ratio- Total Reflux – Optimum Reflux Ratio – Steam Distillation Calculations – Ideal Plate – Actual Plate – Plate Efficiency - Distillation column Internals – Concepts of Azeotropic and Extractive Distillation – Enthalpy Balance for a Continuous Distillation Column (for binary system)

REFERENCES:

1. P.Chattopadhyay, "Unit operations of chemical Engineering", 2nd edition, Khanna Publishers, 1996.

2. W.L.McCabe and J.C.Smith, "Unit operations of Chemical Engineering",5th edition, McGraw Hill International editions, 1993.

3. Alan S Foust, "Principles of Unit Operations", 2nd edition, Wiley International Edition, 1960.

4. J.M. Coulson & Richardson, Chemical Engineering, 5th edition, Butterworth Heinemann, 1996.

Head
Department of
Electrical Engineering
Mewar University, Chittorgarh (Raj.)

Modeling and Simulation of Dynamic Systems

Module 1: Introduction, State space representation of systems of different kind. Simulation of the state model. Describing equations and different kinds of models. Eigen values and vectors, Similarity X' formation, invariants. Stability, controllability, observability, Leverrier's algorithm. Linearization of nonlinear systems

Module 2: Theorem on feedback control, pole placement controller. Full order and reduced order observer design. Theory of industrial regulation, feed forward control. Application - motor speed control with disturbance rejection.

Module 3: Heat flow in one dimension, finite element method. Modeling and simulation through bond graphs. Qualitative reasoning: M & S with Incomplete Knowledge.

Module 4: Sensor modeling: Lumped parameter and distributed parameter models, Thick and thin film models. Numerical modeling techniques, model equations, application of Finite Element method. Different effects on modeling - temperature, radiation, mechanical, chemical, magnetic, electrical (e.g. capacitive, resistive, piezo-resistive, frequency, etc.). Examples of modeling: micro-modeling of photodiodes, magnetic, capacitive, mechanical sensors.

Reference Books:

1. D M Wiberg State Space and Linear Systems Schaum's Outline Series McGraw Hill 1971

2. W B J Zimmerman Process Modeling and Simulation with Finite Element Methods Univ. of Sheffield UK 2004

3. Amalendu Mukherjee and RanjitKarmakar Modeling and Simulation of Engineering Systems through Bond Graphs Narosa New Delhi 1999

4. Benjamin Kuiper Qualitative reasoning: Modeling and Simulation with Incomplete Knowledge MIT Press Cambridge Mass 1994

5. Thomas Kailath Linear Systems Prentice Hall 1980 6. Robert D. Strum and Donald E. Kirk Contemporary Linear Systems Using Matlab Thomson Learning1999.

R.V. Singh
Head
Department of
Electrical Engineering
Mewar University, Chittorgarh (Raj.)

SMART GRID DESIGN AND ANALYSIS

Introduction to Smart Grid:- What is Smart Grid? Working definitions of Smart Grid and Associated Concepts – Smart Grid Functions – Comparison of Traditional Power Grid and Smart Grid – New Technologies for Smart Grid – Advantages – Indian Smart Grid – Key Challenges for Smart Grid.

Smart Grid Architectural Designs: - Smart grid – power system enhancement – communication and standards - General View of the Smart Grid Market Drivers - Stakeholder Roles and Function - Measures - Representative Architecture - Functions of Smart Grid Components-Wholesale energy market in smart gridsmart vehicles in smart grid.

Smart Grid Communications and Measurement Technology:- Communication and Measurement - Monitoring, Phasor Measurement Unit (PMU), Smart Meters, Wide area monitoring systems (WAMS)- Advanced metering infrastructure- GIS and Google Mapping Tools.

Performance Analysis Tools For Smart Grid Design:-Introduction to Load Flow Studies - Challenges to Load Flow in Smart Grid and Weaknesses of the Present Load Fl ow Methods - Load Flow State of the Art: Classical, Extended Formulations, and Algorithms –Load flow for smart grid design-Contingencies studies for smart grid.

Stability Analysis Tools For Smart Grid:-Voltage Stability Analysis Tools-Voltage Stability Assessment Techniques-oltage Stability Indexing-Application and Implementation Plan of Voltage Stability in smart grid-Angle stability assessment in smart grid-Approach of smart grid to State Estimation-Energy management in smart grid.

Renewable Energy and Storage:-Renewable Energy Resources-Sustainable Energy Options for the Smart Grid-Penetration and Variability Issues Associated with Sustainable Energy Technology-Demand Response IssuesElectric Vehicles and Plug-in Hybrids-PHEV Technology-Environmental Implications-Storage Technologies-Grid integration issues of renewable energy sources.

References:-

1) Smart Grid: Fundamentals of design and analysis, James Momoh John Wiley & sons Inc, IEEE press 2012.

2) Smart Grid: Technology and Applications,Janaka Ekanayake, Nick Jenkins, Kithsiri Liyanage, Jianzhong Wu, Akihiko Yokoyama, John Wiley & sons inc, 2012.

3) Smart Grid: Integrating Renewable, Distributed & Efficient Energy,Fereidoon P. Sioshansi, Academic Press, 2012.

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/2020/1338-A **20th December 2020**

OFFICE ORDER

Sub.: Reconstitution of Board of Studies for Department of Computer Science & Engineering

The Board of Studies for the Department of Computer Science & Engineering is reconstituted as per Rule 7 of the Statutes of Mewar University, as under:

1	Prof. (Dr.) Tanveer Ahmed Kazi, Professor & Dean	- Chairman
2	Mrs. Jyoti Totla, Assistant Professor & HOD	- Convener
3	Prof. S. C. Jain, CSE Department, Kota	- External Member 1
4	Prof. (Dr.) Prasun Chakrabarti, Sr. Chair Professor, Techno India NJR, Udaipur	- External Member 2
5	Mr. Awanit Kumar, MITRP, Alwar	- Alumni
6	Mr. D. R. Yadav, Dy. G.M. (IT), BSL. LTD. Bhilwara	- Member from Industry
7	Mr. Firdos Sheikh, Assistant Professor	- Internal Member 1
8	Mr. Anil Dangi, Assistant Professor	- Internal Member 2

The terms of reference for the Board of Studies are as provided in Rule 7 of the Statutes.

The Chairman of the Board of Studies may associate any member in the meeting, as a special invitee if it is considered his association will contribute to the task of the meeting with the approval of the President/Vice-Chancellor.

The Convener of the Meeting is advised to hold the meeting of the BOS seeking the convenience of the Chairman on 13th January 2021. The proceedings of the meeting may be sent to the VC/Registrar as early as possible.

The External Members shall be entitled to TA/DA and sitting fees as per the norms prescribed by Mewar University.

Registrar
Mewar University
Gangrar, (Chittorgarh)

Copy to:

- PS to Hon'ble Chairperson (for kind information)
- PS to Hon'ble President (for kind information)
- PS to Hon'ble Pro-President (for kind information)
- All concerned Deans/Directors/HoDs (for kind information & necessary action)
- Accounts/Examination/Library/Store/Warden/Security/IT Head.
- Coordinator, IQAC Cell.
- Record file.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

DATE:13th January 2021

Minutes of Meeting of Board of Studies

The Board of Studies Meeting of the Department of Computer Science & Engineering is held on 13th January 2021 in Room No. 135 at 10:30 am onwards to approve the new/changes in curriculum and syllabus revision for session 2020-21.
The following members were present: **(Annexure 1)**

1. Prof. (Dr.) Tanveer Ahmed Kazi, Professor & Dean - Chairman
2. Mrs. Jyoti Totla, Assistant Professor & HOD - Convener
3. Prof. S. C. Jain, CSE Department, Kota - External Member 1
4. Prof. (Dr.) Prasun Chakrabarti, Sr. Chair Professor, Techno India NJR, Udaipur - External Member 2
5. Mr. Awanit Kumar, MITRP, Alwar - Alumni
6. Mr. D. R. Yadav, Dy. G.M. (IT), BSL. LTD. Bhilwara - Member from Industry
7. Mr. Firdos Sheikh, Assistant Professor - Internal Member 1
8. Mr. Anil Dangi, Assistant Professor - Internal Member 2

Mrs. JyotiTotla (Head of the Department of Computer Science & Engineering) warmly welcomed all the board members. The Head also appreciated the presence of outside experts who took the pain and keen interest to attend this meeting.

Agenda 1: To approve minutes of the previous BOS, held on 11-09-2019

Resolution: Minutes of the previous BOS of the Computer Science & Engineering department held on 11-08-2019 were discussed and approved.

Agenda 2: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Mrs. Jyoti Totla (Head, Computer Science & Engineering) presented a departmental activity report mentioning all the activities conducted related to curricular development, research development, faculty development and Industrial collaboration.

Agenda 3: Revision of Existing Programmes/ Courses (B. TECH. (CSE) & M. TECH. (CSE))
Resolution: It was resolved to revise the syllabus & scheme for the coming session 2020-21 in B.Tech CSE &M.Tech CSE Programmes.

Agenda 4: Introduction of New Programme/Course
Resolution:

1. As per the suggestionsreceived from previous BOS committee members, five new courses will be introduced for the upcoming session 2020-21 in B.Tech CSE. The courses are mentioned below**(Annexure 3)**

Jyoti 13/1/21

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

- Robotic Control
- Soft Computing
- Real-Time And Embedded System
- Java-Based Web Stack Technology
- Advance Operating System

2. Suggestionsreceived from previous BOS committee members, one new course will be introduced for the upcoming session 2020-21 in M.Tech CSE. The courses are mentioned below **(Annexure 4)**

- Introduction To Data Science

Agenda 5: To recommend the approved syllabus to Academic Council.

Resolution: Members of the Board of Studies approved the revised syllabus and recommended the same be forwarded to the Academic Council for their approval.

The meeting was dissolved with thanks to the Chair and all the Board of Studies Members.

Jyoti
13/1/21

MEWAR UNIVERSITY
Chittorgarh-312901 (Raj.)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF Computer Science & Engineering

DATE:13th January 2021

Annexure 1: Attendance Sheet

SN	Name	Designation	Post	Signature
1	Prof. (Dr.) Tanveer Ahmed Kazi	Professor & Dean	Dean-Chairman	13/08/21
2	Mr. Ankit Navalakha	Assistant Professor & HOD	HOD-Convener	13/01/21
3	Prof. S. C. Jain	CSE Department, Kota,	External Member 1	
4	Prof. (Dr.) Prasun Chakrabarti	Sr. Chair Professor, Techno India NJR, Udaipur	External Member 2	13/01/2021
5	Mr. Awanit Kumar	MITRP, Alwar	Alumni	13/01/21
6	Mr. D. R. Yadav	Dy. G.M. (IT), BSL. LTD. Bhilwara	Member from Industry	13/01/21
7.	Mr. Firdos Sheikh	Assistant Professor	Internal Member 1	13/01/21
8	Mr. Anil Dangi	Assistant Professor	Internal Member 2	13 Jan 2021

Robotic Control

UNIT-1

Robot Anatomy Arm Geometry-Direct & Inverse Kinematics Problem.Arm Dynamics,D Alembert Equations of Motion, Synthesis of elements with movalulity constraints,manipulations-trajectory planning, joint interpolated trajectories.

UNIT-2

Control of Robot Manipulation-computed torque technique sequencing & adaptive control, resolved motion control Moluie Robots.

UNIT-3

Robot sensing-Range & Proximity & Higher-Level vision, illumination techniques,Imaging Geometry, Segmentation Recognition & Interpretation.

UNIT-4

Robot Programming Language Characteristics of Robot Level & Task Level languages.Robot intelligence-State Space search, Robot learning,Robot Task Planning,Knowledge Engineering. [10L]

References:

1. K.S Fu R.C . CSG Lee-Robotics Control,Sensing, Vision & Intelligence,McGraw-Hill.

2. M.P. Groover,M.Weins,R.N. Nagel,N.C. Odrey –Industrial Robotics,McGraw Hill

3. Andrew C.Straugard-Robotics & AI,PHI

4. S. Sitharama Iyengar,Alberto Elefes-Autonomous Mobile Robots Control,Planning & Achitecture,IEEE Computer Society Press

Soft Computing

UNIT-1

Neural Networks: History, overview of biological Neuro-system, Mathematical Models of Neurons, ANN architecture, Learning rules, Learning Paradigms-Supervised, Unsupervised and reinforcement Learning, ANN training Algorithms perceptions, Training rules, Delta, Back Propagation Algorithm, Multilayer Perceptron Model, Applications of Artificial Neural Networks. Competitive learning networks, Kohonen self organizing networks, Hebbian learning; Hopfield Networks, Associative Memories, The boltzman machine; Applications.

UNIT-2

Fuzzy Logic Fuzzy Logic: Introduction to Fuzzy Logic, Classical and Fuzzy Sets: Overview of Classical Sets, Membership Function, Fuzzy rule generation. Operations on Fuzzy Sets: Compliment, Intersections, Unions, Combinations of Operations, Aggregation Operations. Fuzzy Arithmetic: Fuzzy Numbers, Linguistic Variables, Arithmetic Operations on Intervals & Numbers, Lattice of Fuzzy Numbers, Fuzzy Equations.Fuzzy Logic: Classical Logic. Genetic algorithms(Gas),Evolution strategies(Ess), Evolutionary programming(EP), Genetic Programming(GP), Selecting, crossover, mutation, schema analysis, analysis of selection algorithms; convergence; Markov & other stochastic models.

UNIT-3

Other Soft computing approaches [7L] Simulated Annealing, Tabu Search, Ant colony based optimisation, etc.

Text books

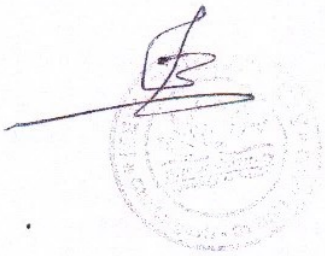
1. "Neuro-Fuzzy and Soft computing", Jang, Sun, Mizutani, Pearson

2. "Neural networks: a comprehensive foundation", Haykin, Pearson

3. "Genetic Algorithms", Goldberg, Pearson

4. "Fuzzy Sets & Fuzzy Logic", G.J. Klir & B. Yuan, PHI.

	Webpack, and Docker by Frank Zammetti • Hands-On Full Stack Development with Spring Boot 2 and React by Juha Hinkula



Real Time & Embedded System

UNIT-1

Introduction-defining Real time systems,Embedded Real Time Systems,Special Characteristics of real time systems,a brief evolutionary history. Hardware Architectures of Real Time systems.

UNIT-2

Software architectures (concepts of interrupt driven activation, need for real time monitor, pseudo parallelism), meeting of dead lines & real time constraints.

UNIT-3

Overview of WARD & MELLOR Methodology: Ward & Mellor Life Cycle,the essential model step,the implementation model,real time extensions of DFD

UNIT-4

Real time languages: overview of ADA/Java Extension , Real time Operating Systems . System Development Methodologies.

Text :

1. "Embedded System Design" Frank Vahid & Tony Givargis; John Wiley & sons, Inc.

2. "Real – Time Systems and software"Alan C. Shaw ; John Wiley & Sons Inc

3. "Fundamentals of embedded Software", Daniel W. Lewis, Pearson

4. "Real time Systems", J. W. S. Liu, Pearson

5. "Embedded Realtime System Programming", S. V. Iyer and P. Gupta, TMH

6. "An Embedded System Primer" David E. Simon; Addison-Wesley Pub

7. "Embedded System Design" Steve Heath; Butterworth-Heinemann Pub.

8."Embedded System Computer Architecture" Graham Wilson, Butterworth-Heinemann,

JAVA BASED WEB STACK TECHNOLOGY

UNIT-1

Client & server side programming. Enterprise architecture styles: Single tier , 2-tier , 3-tier, n-tier; Relative comparison of the different layers of architectures.

MVC Architecture: Explanation, Need, Drawbacks, J2EE WEB SERVICES, Different components & containers.

UNIT-2

Servlet: Introduction, Advantages over CGI, How it works?, Servlet life cycle, Servlet API (Different interfaces & classes of generic servlet & HTTP servlet), Accessing user information by means of Request & Response, Servlet session management techniques and relative comparison.

UNIT-3

JSP: Introduction, Comparison between JSP & servlet., Architecture/Life cycle, Different types of JSP architectures and relative comparison.; JSP tags ,Directives, Scripting elements, Actions; JSP implicit objects, Accessing user information using implicit objects.

UNIT-4

EJB :Introduction, Comparison of EJB & Java Beans , Applications, Drawbacks, Different types of enterprise beans, Services provided by EJB container.

RMI: Introduction and applications, Architecture ,Use of RMI Registry.

JNDI: Introduction and applications, Comparison between LDAP and JNDI

JDO (Java Data Objects): Introduction, Integration of EJB and JDO, JDO & RMI

UNIT-5

JINI :Introduction, Applications

Advanced Operating System

UNIT-1

Process Synchronization

Concepts of processes, Concurrent processes, Threads, Overview of different classical synchronization problems Monitors, Communicating Sequential processes(CSP), Process deadlocks Introduction, causes of deadlocks, Deadlock handling strategies, Models of deadlock

UNIT-2

Distributed operating system

Architectures, Issues in Distributed operating systems, Limitations of Distributed Systems, Lamport's logical clock, Global states, Chandy-Lampert's global state recording algorithm,Basic concepts of Distributed Mutual Exclusion, Lamport's Algorithm, Ricart -Agrawala Algorithm;Basic concepts of Distributed deadlock detection, Distributed File system, Architecture, Design issues, SUN Network File system

UNIT-3

Basic concepts of Distributed shared memory, Basic concepts of Distributed Scheduling, Load balancing, Load sharing. Distributed OS Implementation -Models, Naming, Process migration, Remote Procedure Calls. Multiprocessor System , Motivation, Classification, Multiprocessor Interconnections, Types, Multiprocessor OS functions & requirements. Design & Implementation Issue; Introduction to parallel programming; Multiprocessor Synchronization. Performance, Coprocessors, RISC & data flow

UNIT-4

Introduction, Necessity, Measures, Techniques, Bottlenecks & Saturation, Feedback loops, Coprocessors, RISC. Analytic Modeling Introductions, Queing Theory, Markov Process Security & Protection Security-threats & goals, Penetration attempts, Security Policies & mechanisms, Authentication, Protections & access control Formal models of protection, Cryptography, worms & viruses.

Books:

1) Operating Systems Concepts & design - Milan Milenkovic, TMH

2) Operating System - H.M. Deitel, Pearsons .

3) Advanced Concepts in operating Systems - Mukesh Singhal and Niranjan G. Shivaratri, TMH

INTRO DS

Unit 1

Introduction to core concepts and technologies: Introduction, Terminology, data science process, data science toolkit, Types of data, Example applications, Mathematical Foundations for Data Science: linear algebra; Analytical and numerical solutions of linear equations; Mathematical structures, concepts and notations used in discrete mathematics. Introduction to Statistical Methods: basic and some advanced concepts of probability and statistics; Concepts of statistics in solving problems arising in data science.

Unit 2

Data collection and management: Introduction, Sources of data, Data collection and APIs, Exploring and fixing data, Data storage and management, using multiple data sources

Unit 3

Data analysis: Introduction, Terminology and concepts, Introduction to statistics, Central tendencies and distributions, Variance, Distribution properties and arithmetic, Samples/CLT, Basic machine learning algorithms, Linear regression, SVM, Naive Bayes

Unit 4

Data visualization: Introduction, Types of data visualization, Data for visualization: Data types, Data encodings, Retinal variables, mapping variables to encodings, Visual encodings.

Unit 5.

Computer science and engineering applications Data mining, Network protocols, analysis of Web traffic, Computer security, Software engineering, Computer architecture, operating systems, distributed systems, Bioinformatics, Machine learning

Applications of Data Science, Technologies for visualization, Bokeh (Python), recent trends in various data collection and analysis techniques, various visualization techniques, application development methods of used in data science.

Text Book:

1. Cathy O'Neil, Rachel Schutt, Doing Data Science, Straight Talk from The Frontline. O'Reilly, 2013.

2. Introducing Data Science, Davy Cielen, Arno D. B. Meysman, Mohamed Ali, Manning Publications

Co., 1st edition, 2016

3. An Introduction to Statistical Learning: with Applications in R, Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, Springer, 1st edition, 2013

4. Jure Leskovek, Anand Rajaraman, Jeffrey Ullman, Mining of Massive Datasets. v2.1, Cambridge

University Press, 2014.

5. Data Science from Scratch: First Principles with Python, Joel Grus, O'Reilly, 1st edition, 2015.

OFFICE OF REGISTRAR
MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No. MU/RO/2020/528 **15th June 2020**

OFFICE ORDER

Sub: Reconstitution of Board of Studies for Department of Civil Engineering.

The Board of Studies for the Department of Civil Engineering is reconstituted as per rule 7 of the Statutes of Mewar University, as under:

SN	Name	Designation	Post
1	Dr. Tanveer Ahmed Kazi	Professor & Dean, Faculty of Engg& Technology	Chairman
2	Mr. Shashivendra Dulawat	Assistant Professor	Internal Member 1
3	Mr. Himanshu Kumar Sadhya	Assistant Professor	Internal Member 2
4	Dr. Yash Agrawal	Assistant Professor, CTAE, Udaipur	External Member
5	Mohammed Yusuf	Head, (MR Consultant)	Member from Industry
6	Mr. Deepesh Songra	Structural Engineer, S N S Corporation, New Delhi	Alumni Member
7	Dr. Esar Ahmad	Assistant Professor & HOD	Convener

The term of reference for the Board of Studies is as provided in rule 7 of the statutes.

The Chairman of the Board of Studies may associate any member in the meeting, as a special invitee if it is that considered his/her association will contribute to the task of the meeting, with the approval of the President/Vice-Chancellor.

The Convener of the meeting is advised to hold a meeting of the BOS seeking the Convenience of the Chairman in the third week of June. The proceeding of the meeting may send to the VC/Registrar as early as possible.

The External Member shall be entitled to TA/DA and sitting charges as per the norms prescribed by Mewar University.

Registrar
Mewar University
Gangrar, (Chittorgarh)

Copy to:
1. PS to Hon'ble Chairman (for kind inf)
2. PS to Hon'ble President/Pro-President (for kind inf)
3. All concerned Deans/Directors/HoDs (for kind inf & Necessary action)
4. Accounts/Examination/Library/Store/Warden/Security/IT Head.
5. Coordinator, IQAC Cell.
6. Record File.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF CIVIL ENGINEERING

DATE: 18-06-2020

Minutes of Meeting of Board of Studies

Minutes of the 4th BOS of the Department of Civil Engineering meeting held on 18-06-2020 at 11.30 AM.

The following members were present: **(Annexure 1)**

SN	Name	Designation	Post
1	Dr. Tanveer Ahmed Kazi	Professor & Dean, Faculty of Engg & Technology	Chairman
2	Mr. Shashivendra Dulawat	Assistant Professor	Internal Member 1
3	Mr. Himanshu Kumar Sadhya	Assistant Professor	Internal Member 2
4	Dr. Yash Agrawal	Assistant Professor, CTAE, Udaipur	External Member
5	Mohammed Yusuf	Head, (MR Consultant)	Member from Industry
6	Mr. Deepesh Songra	Structural Engineer, S N S Corporation, New Delhi	Alumni Member
7	Dr. Esar Ahmad	Assistant Professor & HOD	Convener

Dr. Esar Ahmad, Head of the Department of Civil Engineering, warmly welcomed all the board members. The Head also appreciated the presence of outside experts who took the pain and keen interest to attend this meeting.

Agenda 1: To approve minutes of the previous BOS, held on 10-06-2019

Resolution: Minutes of the previous BOS of the Civil Engineering Department held on 10-06-2019 were discussed and approved.

Agenda 2: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Dr. Esar Ahmad (Head, Civil Engineering) presented a departmental activity report mentioning all the activities conducted related to curricular development, research and development, faculty development and Industrial collaboration.

Agenda 3: Revision of Existing Programmes/ Courses

Resolution: The Committee reviewed the scheme and syllabus of B. Tech (Civil Engineering) and M. Tech Programme (Transportation Engineering, Construction Technology & Management and Structural Engineering) and approved the scheme and syllabus of B. Tech &M. Tech Programme for the session 2020-21. **(Annexure 2)**

Agenda 4: Introduction of New Programmes/ Course

Resolution:

1. The Committee proposed one new programme M. Tech in 'Environmental Engineering' and approved the scheme & syllabus for the upcoming session from 2020-21. **(Annexure 3)**

- Environmental Engineering

2. The Committee proposed one new course in the syllabus of M.Tech Structural Engineering due to market demand. Approximately 25 percent of changes are made in M.Tech Structural Engg. for the 2020-21 session and the BOS Committee approved the syllabus. **(Annexure 4)**

- Theory of Elasticity And Plasticity

3. The Committee proposed three new courses in the syllabus of M.Tech Constructional Technology and Management (CTM) for the upcoming 2020-21 session and the BOS Committee approved the syllabus. **(Annexure 5)**

- Low-cost building materials and construction techniques
- Building Science
- Design Of Earthquake Resistant Structures

4. The BOS Committee approved the syllabus of four new courses in the B. Tech. Civil Engineering from session 2020-21 is mentioned below. **(Annexure 6)**

- IT for Smart Cities
- Numerical Methods in Geotechnical Engineering
- Quantity Surveying, Specifications, and Valuation
- Detailing of RC and Steel Structures

Agenda 5: To recommend the approved syllabus to Academic Council

Resolution: Members of the Board of Studies approved the revised syllabus and recommended the same be forwarded to the Academic Council for their approval.

The meeting was dissolved with thanks to the Chair and all the Board of Studies Members.

Annexure 1: Attendance Sheet

SN	Name	Designation	Post	Signature
1	Dr. Tanveer Ahmed Kazi	Professor & Dean, Faculty of Engg & Technology	Chairman	
2	Mr. ShashivendraDulawat	Assistant Professor	Internal Member 1	
3	Mr. Himanshu Kumar Sadhya	Assistant Professor	Internal Member 2	
4	Dr. Yash Agrawal	Assistant Professor, CTAE, Udaipur	External Member	
5	Mohammed Yusuf	Head, (MR Consultant)	Member from Industry	
6	Mr. Deepesh Songra	Structural Engineer, S N S Corporation, New Delhi	Alumni Member	
7	Dr. Esar Ahmad	Assistant Professor & HOD	Convener	

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

MEWAR UNIIVERSITY CHITTORGARH (RAJASTHAN)
FACULTY OF ENGINEERING & TECHNOLOGY

Course Scheme and Syllabus of Master of Technology
ENVIRONMENTAL ENGINEERING
Effective from 2020-21

MEWAR UNIVERSITY CHITTORGARH (RAJASTHAN)
Faculty of Engineering and Technology
Two Year M Tech: Environmental Engineering

Eligibility for Admission: A candidate for being eligible for admission to the Master of Technology in **Environmental engineering** in the faculty of engineering and technology should have passed B.Sc. (Engg.)/ B.Tech/ B.E. / or any other equivalent degree in the relevant discipline / branch from any recognized Indian or foreign University.

A candidate should have at least 55% marks or equivalent CGPA in the qualifying examination (50% marks or equivalent CGPA for Scheduled Caste/Scheduled Tribes Candidates) on the basis of which the admission is being sought.

Overview of the Program: The normal duration of program shall be four Semesters The complete program comprises of 12 theory courses (10 Core and 02 elective) and 02 Labs also dissertation with one international paper published by the student with the help of chosen suitable supervisor according to the norms of the university. Student has to obtain at least D Grade to pass the examination (both internal and external examination separately) for all the courses specified in the scheme of the program. The degree will be awarded on the basis of cumulative marks obtained in all the four semesters and the division obtained will be as under:

MEWAR UNIVERSITY CHITTORGARH (RAJASTHAN)

Scheme of Two Year M Tech: Environmental Engineering

Course Title	Contact Hours Per Week		Credit Hours	Internal Assessment/Examination		External Examination /Viva-Voce	Total Marks
	L	P		Assignments /Lab Record	Teachers Evaluation		
l Chemistry and	4	-	4	30	10	60	100
Pollution	4	-	4	30	10	60	100
nt Processes	4	-	4	30	10	60	100
aste Management	4	-	4	30	10	60	100
	4	-	4	30	10	60	100
Engineering Lab- I		2	2	10	10	30	50
Total Semester Credits=			**22**			**Total Semester Marks=**	**550**

ourse Title	Contact Hours Per Week		Credit Hours	Internal Assessment/Examination		External Examination /Viva-Voce	Total Marks
	L	P		Assignments /Lab Record	Teachers Evaluation		
rdous Waste	4	-	4	30	10	60	100
Management	4	-	4	30	10	60	100
Impact Assessment	4	-	4	30	10	60	100
lysis and Design for	4	-	4	30	10	60	100
	4	-	4	30	10	60	100
ngineering Lab- II		2	2	10	10	30	50
Total Semester Credits=			**22**			**Total Semester Marks=**	**550**

Third Semester

Course Code	Course Title	Contact Hours Per Week		Credit Hours	Internal Assessment/Examination		External Examination /Viva-Voce	Total Marks
		L	P		Assignments /Lab Record	Teachers Evaluation		
EVE -631	Renewable Energy Sources	4	-	4	30	10	60	100
EVE -632	Application of Remote Sensing in Environmental Engineering	4	-	4	30	10	60	100
EVE -633	Seminar		6	6	-	-	150	150
EVE -634	Minor Project		8	8	-	-	200	200
Total Semester Credits=				**22**			**Total Semester Marks=**	**550**

Fourth Semester

Course Code	Course Title	Contact Hours Per Week		Credit Hours	Internal Assessment/Examination		External Examination /Viva-Voce	Total Marks
		L	P		Report	Teachers Evaluation		
EVE -641	Dissertation	-	16	16	50	-	350	400
Total Semester Credits=				**16**			**Total Semester Marks=**	**400**

LIST OF ELECTIVES

ELECTIVE I

1. EVE -615- Advance Waste Water Treatment
2. EVE -616- Environmental Planning and Management
3. EVE -617-Bioremediation: Principles and Applications

ELECTIVE II

1. EVE -5625- Industrial safety and environment
2. EVE -626- Advanced Computational Methods and Optimization
3. EVE -627-Environmental Issues Protection and Laws

LIST OF ELECTIVES

ELECTIVE - I

1.	SE-711	Advanced Concrete Technology
2.	SE-713	Pre Stressed Concrete Structure
3.	SE-715	Masonry structures
4.	SE-717	Sustainable materials and construction
5.	SE-719	Stability of Structures

ELECTIVE - II

1.	SE-721	Stability Theory And Structural analysis
2.	SE-723	Soil Structure Interaction
3.	SE-725	Maintenance and Rehabilitation of Structures
4.	SE-727	Design of Offshore structures

ELECTIVE - III

1.	SE-712	Reliability based structural design
2.	SE-714	Design of Tall Building
3.	SE-716	Wind Resistance Design of Structures
4.	SE-718	Advanced Foundation Engineering
5.	SE-720	Theory of Elasticity and Plasticity

ELECTIVE - IV

1.	SE-722	Artificial Intelligence in Structural Engineering Applications
2.	SE-724	Fracture and Fatigue Mechanics
3.	SE-726	Advanced Numerical Methods
4.	SE-728	Evaluation and Retrofitting of Buildings

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

MEWAR UNIVERSITY
Department of Civil Engineering

M TECH: STRUCTURAL ENGINEERING
THEORY OF ELASTICITY AND PLASTICITY

UNIT – I

Introduction: Elasticity - notation for forces and stresses - components of stresses - components of strain - Hooks law. Plane stress and plane strain analysis - plane stress - plane strain - differential equations of equilibrium - boundary conditions - compatibility equations - stress function - boundary condition.

UNIT – II

Two dimensional problems in rectangular coordinates - solution by polynomials - SaintVenant's principle - determination of displacements - bending of simple beams - application of corier series for two dimensional problems - gravity loading. Two dimensional problems in polar coordinates - stress distribution symmetrical about an axis - pure bending of curved bars - strain components in polar coordinates - displacements for symmetrical stress distributions - simple symmetric and asymmetric problems - general solution of two- dimensional problem in polar coordinates - application of general solution in polar coordinates.

UNIT – III

Analysis of stress and strain in three dimensions - principal stresses - stress ellipsoid - director surface - determination of principal stresses - max shear stresses – homogeneous deformation - principal axes of strain rotation. General Theorems: Differential equations of equilibrium - conditions of compatibility - determination of displacement - equations of equilibrium in terms of displacements - principle of super position - uniqueness of solution - the reciprocal theorem.

UNIT – IV

Torsion of Prismatic Bars - torsion of prismatic bars - bars with elliptical cross sections - other elementary solution - membrane analogy - torsion of rectangular bars - solution of torsion problems by energy method - use of soap films in solving torsion problems - hydro dynamical analogies - torsion of shafts, tubes , bars etc. Bending of Prismatic Bars: Stress function - bending of cantilever - circular cross section - elliptical cross section - rectangular cross section - bending problems by soap film method - displacements.

UNIT – V

Theory of Plasticity: Introduction - concepts and assumptions - yield criterions.

Reference Books:

1. Theory of Elasticity by Timeshanko, McGrawhill Publications.
2. Theory of Plasticity by J.Chakarbarthy, McGrawhill Publications.
3. Theory of Elasticity by Y.C.Fung.
4. Theory of Elasticity by Gurucharan Singh.

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Internal Assessment/Examination: The internal evaluation for all theory courses (40% of the total marks) will be based on the evaluation of **two assignments** provided during the semester and assessment of the teacher concerned. Similarly, the internal evaluation for all Lab courses (50% of the total marks) will be based on the evaluation of lab record and assessment of the teacher concerned.

External Examination/Viva -voce: For all the theory courses, there will be **08 (Eight)** questions to be set by the external paper setter (nominated /approved by the competent authority) out of which the candidate will have to attempt **05 (Five)** questions all carrying equal marks. Duration of each external examination will be three hours. Similarly, the external evaluation for all Lab courses (50% of the total marks) will be based on the evaluation/viva-voce conducted by an external examiner (from the relevant field) nominated/approved by the competent authority.

Submission and Evaluation of Dissertation:

a) A dissertation supervisor (s) having at least post- graduate qualification. from industry/rEVEarch organization shall be assigned to the student approved by the competent authority. *In no case, the candidate can have more than two dissertation supervisors.*

b) The final dissertation external examination in 4th semester shall be taken by a panel of examiners comprising of concerned Supervisor (s), one external examiner (from the relevant field) nominated/approved by the competent authority. Hard copies of dissertation, one for each supervisor (s), examiner and the university/ department, are required to be submitted by the student before the final dissertation external examination. The candidate shall appear before the examining committee for oral examination and prEVEntation on the scheduled date.

EVE -611 ENVIRONMENTAL CHEMISTRY AND MICROBIOLOGY

Environmental Chemistry:

Introduction and basic concepts of environmental chemistry.

Environmental composition, stratospheric chemistry (ozone), tropospheric chemistry (smog, precipitation), atmospheric aerosols, chemistry of global climate (greenhouse gases). Environmental issues related to aqueous organic matter, water pollution and wastewater treatment chemistry. Chemistry of solid wastes. Organic biocides.

Microbiology:

Basic concepts of cell structure and function. Biochemistry of carbohydrates, fats and lipids, and proteins. Enzymes and co- factors.

Bacteria, algae, fungi, protozoa and virus - characteristics, morphology/structure, classification, spore formation, economic importance (beneficial and harmful aspects), role in bio-concentration and species of importance. Control of microbes.

Role of microorganisms in sewage treatment. Bio-remediation, bio-leaching and metal extraction, biosensors to detect environmental pollution, and biological fuel generation.

Note: The examiner is required to set EIGHT questions in all carrying equal marks covering the entire syllabus. The candidate is required to attempt FIVE questions.

Recommended Books:

- Environmental Chemistry by G.W. vanLoon and S.J. Duffy, Oxford University Press.
- Chemistry for Environmental Engineering by Clair N. Sawyer, Perry McCarty and Gene F. Parkin, McGraw Hill Inc. New York.
- Introduction to Biotechnology by A. Deswal and S. Deswal, Dhanpat Rai & Co. (P) Ltd. N. Delhi.
- Microbiology by M.J. Pelczar and R.D. Reid, Tata McGraw Hill Inc.
- Environmental Engineering by H.S. Peavy, D.R. Rowe & G.Tchobanoglous, McGraw Hill Inc. New York.

EVE - 612 AIR AND NOISE POLLUTION

Air Pollution:

Introduction: definition, atmospheric composition, origin of air pollution, sources, classification and effects of air pollutants.

Meteorological aspects of air pollution: dispersion of air pollutants, plume behaviours, air diffusion models, design of stacks, effects of air pollution on meteorological conditions.

Air pollution sampling: ambient and stack sampling, ambient air quality monitoring, air quality standards.

Engineered methods of air pollution control: atmospheric cleansing processes, approaches to contaminant control, control devices for particulate contaminants and gaseous contaminants.

Noise Pollution:

Definition, unit of measurement, loudness, hearing mechanism, measurement of noise and weighting networks, sources of noise, psychological & pathological effects of noise, strategies for noise pollution control, noise monitoring and standards.

Note: The examiner is required to set EIGHT questions in all carrying equal marks covering the entire syllabus. The candidate is required to attempt FIVE questions.

Recommended Books:

- Environmental Engineering by H.S. Peavy, D.R. Rowe & G.Tchobanoglous, McGraw Hill Inc. New York.
- Air Pollution by H.C. Perkins, McGraw Hill Publishers, New York.
- Air Pollution by Rao and Rao, Tata McGraw Hill Publishers, New Delhi.
- A Basic Course in Environmental Studies by S. Deswal and A. Deswal, Dhanpat Rai & Co. (P) Ltd. N. Delhi.
- Environmental Engineering by A.P. Sincero and G.A. Sincero, PHI, N. Delhi.

EVE -613 WATER TREATMENT PROCESSES

Water Quality: wholesomeness of water, definitions, water-quality parameters and their examination and significance, water- quality requirements and standards.

Water Purification Processes in Natural Systems: physical, chemical and bio-chemical processes. Response of streams to bio-degradable organic waste, application of natural processes in engineered systems.

Water Treatment Processes: Theory, Design and Application - aeration, solids separation, settling operations, coagulation and flocculation, adsorption, filtration, chlorination and other disinfection processes, softening, taste and odour removal, corrosion phenomenon, and other water treatment processes like removal of fluoride, arsenic, iron and manganEVE.

Note: The examiner is required to set EIGHT questions in all carrying equal marks covering the entire syllabus. The candidate is required to attempt FIVE questions.

Recommended Books:

- Water Quality and Treatment A Handbook of Public Water Supply by The American Water Works Association (AWWA), McGraw Hill Inc. New York.
- Environmental Engineering by H.S. Peavy, D.R. Rowe and G Tchobanoglous, McGraw-Hill Book Co. NY.
- Physicochemical Processes for Water Quality Control by W.J. Weber, Wiley Interscience, NY.
- Environmental Engineering by A.P. Sincero and G.A. Sincero, PHI, N. Delhi.
- Water Quality by American Water Works Association (AWWA).
- Water Treatment by American Water Works Association (AWWA).
- Environmental Engineering (Vol. I) by S.K. Garg, Khanna Publishers, N. Delhi.
- Manual on Water Supply and Treatment by CPHEEO, GOI, N. Delhi.

EVE -614 SUSTAINABLE WASTE MANAGEMENT

Introduction: Concept of sustainability in water and waste management – Environmental indices-Bio remediation .

Water Conservation: Rainwater Harvesting – Roof water harvesting – Technology – Quality – Health issues – Groundwater recharge – Techniques – Case studies – Wastewater reuse and reclamation.

Natural Wastewater Treatment Systems: Centralized Vs decentralized – Natural and constructed wetlands – Different types – Mechanisms – Performance – Design – Case studies – Land treatment systems.

Low–Cost Sanitation: Dry sanitation methods – Pit latrines – VIP latrines – Septic tank

Organic Solid Waste Management Techniques: Composting/vermicomposting – Biogas technology – Plasma technology.

Note: The examiner is required to set EIGHT questions in all carrying equal marks covering the entire syllabus. The candidate is required to attempt FIVE questions.

Recommended Books:

- Wastewater Treatment Systems by Cites R.W., Middlebrooks E.J., Reed S.C., Natural, CRC Taylor and Francis, 2006.
- Environmental Health Engineering in the Tropics by Cairncross S., Feachem R.; John Wiley & Sons 1993.
- Practical Handbook on Public Health Engineering by Bajwa, G.S., Deep Publishers, Simla, 2003.
- Environmental Systems – An Introductory Text by White, I.D, Mottershed, D.N and Harrison, S.L., Chapman Hall, London, 1994.
- Biological Degradation of Wastes by Martin, A.M., Elsevier Appl. Science, New York, 1991.

EVE -615 ADVANCE WASTEWATER TREATMENT

Waste Water Characteristics and their significance. B.O.D. Methods of Determination of K and Lo, Nitrification. Comparison of various methods of Determination of Organics. Screens, Grit Chamber, Floatation. Sedimentation, Zone Settling, Classification of biological Waste water Treatment Process, Design of PST, SST. Aeration of Waste Water. Oxygen Transfer : Process, Kinetic Relationship of Bio-Kinetic Parameters, Design Procedure, Modifications of A.S.P., Extended Aeration, Contact Stabilization, Step aeration, Tapered aeration, Trickling Filters. Theory of, Physical Arrangements, Design of ponds and Lagoons. Theory & Design of Rotating Biological Contactors, Concepts of Sequencing Batch Reactors Anaerobic & Filter UASB Sewage Farming. Sludge : Sources, Characteristics, Volume- Mass relationship, Sludge Stabilization, Conventional and High Rate Digesters, Gas Production, Collection, Disposal of Sludge. Tertiary treatment: Nitrogen removal, Phosphorus Removal

Note: The examiner is required to set EIGHT questions in all carrying equal marks covering the entire syllabus. The candidate is required to attempt FIVE questions.

Recommended Books:

- Manual on Sewerage and Sewage Treatment by CPHEEO, GOI, N. Delhi.
- Wastewater Engineering Treatment, Disposal and Reuse by Metcalf and Eddy, Tata McGraw Hill Publishing Co., New Delhi.
- Elements of Water Supply and Wastewater Disposal by G.M. Fair, J.C. Geyer and D.A. Okun, John Wiley & Sons Inc New York NY.
- Environmental Engineering by A.P. Sincero and G.A. Sincero, PHI, N. Delhi.
- Environmental Engineering (Vol. I & II) by S.K. Garg, Khanna Publishers, N. Delhi.