MEWAR UNIVERSITY, GANGRAR, CHITTORGARH
DEPARTMENT OF LIFE SCIENCE

Biomolecules

Unit I

Concept of Chemical bonding: Forces involved in biological molecules, electrostatic, hydrophobic, H-bonding, van der wal's.

Unit II

Structure and Functions of Biomolecules and Macromolecules:

Carbohydrates: mono, di- and polysaccharides.

Lipids: classification; structure and function, their role in biological membranes.

Unit III

Proteins: chemistry of amino acids and peptides, chemical synthesis of peptides, Primary Secondary, Tertiary and Quaternary Structure of proteins; □-helix, □-sheet and collagen structure helix-coil transition, Ramachandran plots, amino acid sequences, allosteric interactions, cooperative ligand binding in Oxygen transporters,Hill equation, Protein folding.

Unit IV

Nucleic acids: Watson-Crick model of DNA; sugar puckerings, stacking; B-; A-and Z-DNA ; denaturation kinetics of DNA , Cot curves; structure of tRNA and ribosomes, Supercoiling of DNA and its influence on structure, Nucleosomal structure.

Unit V

Separation and purification of biomolecules and macromolecules: ionexchange, gel filtration, affinity chromatography, TLC, HPLC, GC, electrophoresis, electrofocusing.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH
DEPARTMENT OF LIFE SCIENCE

ENZYME AND REACTION KINETICS

Unit I

Definition of enzymes; active site, substrate, coenzyme, cofactor and different kinds of enzyme inhibitors;

Unit II

Enzyme kinetics, two substrate kinetics, three substrate kinetics, deviation from linear kinetics; ligand binding studies; rapid kinetics; association and dissociation constants;

Unit III

Use of isotopes in enzyme kinetics mechanism analysis; effect of pH, temperature and isotopically labeled substrates on enzyme activity; allosteric model of enzyme regulation; substrate induced conformational change in enzyme;

Unit IV

Techniques for purifying and characterizing proteins and enzymes; Estimation of proteins, enzyme kinetics, effects of pH and temperature on enzyme, use of inhibitors for active site determination, chromatographic techniques, purification of enzymes,

Unit V

Idea of all analytical techniques like electrophoresis, liquid chromatography, crystallography, column chromatography for enzyme protein analysis.

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH
DEPARTMENT OF LIFE SCIENCE

MEDICAL BIOTECHNOLOGY AND GENE THERAPY

UNIT I

Disease diagnosis-probe, PCR, LCR immunological assay. Detection of genetic, Neurogenetic disorders involving Metabolic and Movement disorders. Treatment-products from recombinant and non-recombinant organisms, Interferons, Antisense therapy, cell penetrating peptides. Gene therapy, Types of gene therapy, somatic virus germline gene therapy, mechanism of gene therapy, Immunotherapy.

UNIT II

Detection of mutations in neoplastic diseases MCC, SSCP, DGGE, PTTC. Focusing on emerging infections, viral classifications, transmissions and preventions, viral pathogenesis, mechanisms of viral induced cancer and viral evolution, developmental biology of virally induced birth defects, factors in pathogenesis and transmission of prions.

UNIT III

Cell mediated and Gene therapy as a novel form of drug delivery, vectors, cell types. Responses to viral infections; slow and persistent infections, anti-viral agents, interferons, equipment's and materials for animal cell culture technology. Primary and established cell line cultures. Introduction to the balanced salt solution and the simple growth medium.

UNIT IV

Brief discussion on the chemical, physical and metabolic functions of different constituents of culture medium. Serum and protein free defined media and their applications. Measurements of viability and cytotoxicity. Biology and characterization of the culture cells, measuring parameters of growth. Basic techniques of mammalian cell culture in vitro; desegregation of tissue and primary culture, maintenance of cell culture, cell separation.

UNIT V

Scaling up of animal cell culture. Cell synchronization. Cell cloning and micromanipulation. Cell transformation. Application of animal cell culture. Stem cell culture, embryonic stem cells and their applications. Cell culture-based vaccines, somatic cell genetics, organ and histotypic cultures.

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

Ref. No. MU/RO/2016/ 2985-C **28th November 2016**

OFFICE ORDER

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

The Board of Studies for the Department of Psychology is reconstituted as per Rule 12 of the Statutes of Mewar University, as under:

1) Prof. Mohini Acharya, Dean, Faculty of Education and Psychology - Chairman
2) Dr. Ravindra kumar, HoD, Assistant Professor - Convener
3) Prof. Santosh Meena, HoD, Psychology Banasthali University - External Member
4) Prof. Sushila Pareek, Associate Professor, University of Rajasthan - External Member
5) Dr. Durga prasad, Assistant Professor - Internal Member
6) Mr. Manoj Kumar Yadav, Assistant Professor - Internal Member

The terms of reference for the Board of Studies are as provided in Rule 12 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 December 2016. 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 PSYCHOLOGY

DATE: 17/12/2016

Minutes of Meeting of Board of Studies

The Board of Studies Meeting of the Department of Psychology was held on 17th December 2016 in Room No. 135 at 11:00 am onwards to approve the new/changes in curriculum and syllabus revision for session 2017-18.

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

1) Prof. Mohini Acharya, Dean, Faculty of education and Psychology - Chairman
2) Dr. Ravindra Kumar, HoD, Assistant Professor - Convener
3) Prof. Santosh Meena, HoD, Psychology Banasthali University - External Member
4) Prof. Sushila Pareek, Associate Professor, University of Rajasthan - External Member
5) Dr. Durga prasad, Assistant Professor, - Internal Member
6) Mr. Manoj Kumar Yadav, Assistant Professor, - Internal Member

At the outset, Dr. Ravindra Kumar (Head, Department of Psychology) 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 06-06-2016

Resolution: Minutes of the previous BOS of the Psychology department held on 06-06-2016 were discussed and approved.

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

Resolution: Dr. Ravindra Kumar (Head, Department of Psychology) presented a departmental activity report mentioning all the activities conducted related to curricular development, research development, and faculty development.

Agenda 3: Review of any program/course

Resolution: No changes were made to the approved scheme and syllabus of the course M.A. Psychology.

Agenda 4: Any other suggestions by BOS Committee

Resolution:

Ravinder kumar

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- The inclusion of a few latest reference books and the removal of a few old reference books from the syllabus were also emphasized.

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.

Ravindekumar

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Prof. Mohini Acharya (Chairman) Dean, Faculty of Education & Psychology, Mewar Universit	Chairman	M.D. Acharya
2	Prof. Sushila Pareek, Member (External) Associate Professor, Department of Psychology, University of Rajasthan, Jaipur (Rajasthan)	External Member	Sushila. 17.12.2016
3	Prof. Santosh Meena, Member (External) Head, Department of Psychology, Banasthali University, Tonk (Rajasthan)	External Member	
4	Mr. Manoj Kumar Yadav, (Member) Assistant Professor, Department of Psychology, Mewar University, Gangrar, Chittorgarh (Rajasthan) 312901	Internal Member	17.12.2016
5	Dr. Durga prasad, (Member) Assistant Professor, Department of Psychology, Mewar University, Gangrar, Chittorgarh (Rajasthan) 312901	Internal Member	Durga. 17.12.2016
6	Mr. Anuj Kumar	Alumni	Anuj Kumar.
7	Dr. Ravindra Kumar, (Convenor) Assistant Professor & Head, Department of Psychology, Mewar University, Gangrar, Chittorgarh (Rajasthan) 312901	Convener	Ravindra Kumar. 17.12.2016

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

Ref. No.: MU/RO/2017/ 409-B **08th April 2017**

OFFICE ORDER

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

The Board of Studies for the Department of Management is reconstituted as per Rule 12 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) S.P. Mathur, Dean, Faculty of Management and Commerce - Chairman
2) Prof. (Dr.) Lalit Pipliwal, Professor, JRN Vidhya Peeth University,Udaipur - External Member
3) Mr. Umesh Toshniwal, GM-Marketing,.Nitin Spinners Ltd, Bhilwara - External Member
4) Mr. Raj Singh, Assistant Professor, - Internal Member
5) Mr. Nishant Dublish, Assistant Professor - Internal Member
6) Mr. Bitan Debnath, Marketing Executive, Dabar India Ltd. - Alumni
7) Mr. Rajesh Bhatt, Head & Assistant Professor, - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 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 last week of April 2017. 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) RAJASTHAN

DEPARTMENT OF MANAGEMENT

DATE: 24th April 2017

Minutes of Meeting of Board of Studies

Minutes of the meeting of the BOS held on Saturday, 24th April 2017 in Room No 333 are as under:

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

Prof. (Dr) S.P. Mathur	Dean, Faculty of Management and Commerce	Chairman
Prof. (Dr) Lalit Pipliwal	JRN Vidhya Peeth University, Udaipur	External Member
Mr. Umesh Toshniwal	VP- Marketing, Nitin Spinners Ltd., Bhilwara	External Member
Mr. Raj Singh	Assistant Professor	Internal Member
Mr. Nishant Dublish	Assistant Professor	Internal Member
Mr. Bitan Debnath	Marketing Executive, Dabar India Ltd.	Alumni
Mr. Rajesh Bhatt	Head & Assistant Professor	Convener

At the outset, Mr. Rajesh Bhatt, Head of the Department of Management, 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:

- To make the course more relevant and do necessary changes and up gradation of all the courses/training programmes proposed by the academic members of the BOS.
- In addition, BOS will also explore the possibility of conducting new courses according to the requirement of the corporate world.
- To offer suggestions for identifying areas for the conduction of workshops/seminars etc. in the coming session.

Minutes of Meeting

1. The syllabus of the BBA on choice-based credit system (CBCS) pattern has been implemented vide the approval of the board of studies which was held 24th April 2017.

MEWAR UNIVERSITY * Chittorgarh - 312901 (Raj.) *

2. The syllabus of the MBA on CBCS pattern has been implemented vide the approval of the board of studies which was held 24th April 2017.

3. Integrated BBA-MBA program has been running since the beginning, by the interest of the students we have included the CBCS pattern in our integrated program, so this program has been approved by the members of the BOS.

4. All the contents of the syllabus and their nomenclature have been duly studied and approved by the members of BOS.

5. The BOS committee Members agreed to introduce two new courses for BBA students in the semester 3rd from the upcoming session 2017-18. The courses are mentioned below. **(Annexure 2)**

- Business Economics
- Computer Application

6. The BOS committee Members agreed to introduce one new course for MBA students in the semester 2nd from the upcoming session 2017-18. The courses are mentioned below. **(Annexure 3)**

- Office Management

7. Members agreed to change the subject name instead of "Comprehensive Viva-Voce" to "Entrepreneurship Development" in BBA IIIrd Semester.

8. Members are agreed to change the subject name instead of "Comprehensive viva-voce" to "Corporate Accounting" in BBA IVth Semester.

9. Members agreed to change the subject name instead of comprehensive viva-voce to "Banking and Insurance" in BBA Vth Semester.

10. 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 I

MEWAR UNIVERSITY

DEPARTMENT OF MANAGEMENT

Date of the meeting: 24-04-2017

Venue: Room No: - 333

Members present:-

SN	Name	Designation	Post	Signature
1	Prof (Dr) S.P. Mathur	Professor, Mewar University	Chairman	
2	Prof (Dr) Lalit Pipliwal	JRN Vidhya Peeth University, Udaipur	External Member	
3	Mr Umesh Toshniwal	VP- Marketing, Nittin Sipnners Ltd., Bhilwara	External Member	
4	Mr Raj Singh	Asst. Professor, Dept of Management	Internal Member	
5	Mr Nishant Dublish	Asst. Professor, Dept of Management	Internal Member	
6	Mr. Bitan Debnath	Marketing Executive, Dabar India Ltd.	Alumnai	
7	Mr Rajesh Bhatt	Head-Dept of Management	Convener	

Business Economics

Unit 1 –

M.E. – Meaning, Nature, Scope, relationship with other sciences & its Significance, Economics applied to Business Decisions, Theory of firm & industry Demand Analysis – Law of demand, determinants of demand, demand curve, consumer surplus, Elasticity of demand & Demand forecasting.

Unit 2 –

Cost – Average, Marginal & total cost, Basic cost curves, Relation between production & cost, Break Even Analysis – Break Even point, Managerial use of B.E.P. and its limitation. Factors influencing P/V decisions.

Unit 3 –

Price output decisions, classification of markets. Structures and their making features, Pricing under Perfect
Competition and Monopoly. Profit Planning & Management – Types of Profit, some concepts related to profit, factors determining, profit in short & long term Dynamics of surplus, Theory & residual claimant theory of Profit.

Reference:

Managerial Economics – D. N. Dwivedi
Managerial Economics – Varshney & Varshney

Computers

Unit 1 –

Introduction – Defining Computers, features, History, Generations, Components, classification of computers, input-output devices, Types of computer memory, introduction to computers, Hardware and Software. Introduction to HTML – Applying Bold, Italic, underline, Strikethrough, overlie, marquee, images, Hyperlinks, Textbooks, Buttons, Checkboxes, Radio Buttons, ordered and Unordered List, Tables, FRAMESET, LEGEND. Operating System – Meaning, functions, dikes operating system bandits commands & elementary idea of the operating system.

Unit 2-

Introduction to Boolean Algebra: AND, OR NOT, NAND gates, Half – Adder, Full – Adder, Kannaugh Maps, Simplification. Introduction to computer network – Concepts of Networking, Advantages, classification of NETWORKS – LAN, MAN, WAN, VWAN, Usenet, Telnet. Concept of Green P.C.Concept of Screen Saver, Ergonomics, Nazis Schiedermannn Diagram, Warier – Orr Diagrams, Decision Trees, Decision Tables, HIPO, VROC, IPO, Data Dictionary Menu design, MIS, Anthony's classification, DSS, Software documentation.

Unit 3 –

WINDOWS introduction, utilities, shortcuts, working with word pad, MS Paint, MS Word, MS Excel Internet – What is internet, History, Importance, equipment, needed, www-meaning, procedure for E-mail, Transfer files to Computer

Reference:

Fundamental of Computers – Rajaraman
Computes Today – B. Sandra

Office Management

Unit 1

Definition the office, function of office, activities of office, emergency of modern office an overview, office layout, objectives & principles of office layout and types of office layout.

Unit 2.

Office Management – Concept, need and importance, office manager – position manager, function and responsibility of office manager, administrative office management, communication – Oral and written, Internal and External communication network.

Unit 3

Office Organization – Meaning, principles of organization, types of organization, process of delegation and decentralization of authority and responsibility relationship. Record Management – Purpose, Principle, Filing - characteristics of good filing, advantages and classification of files, methods of filing.

Reference:

Office Management by R.K. Chopra
Office Organization and Management by R.K. Chopra

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

Ref. No.: MU/RO/2017/34-A **10th January 2017**

OFFICE ORDER

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

The Board of Studies for the Department of Law is reconstituted as per Rule 12 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) P.S. Varshney, Dean, Faculty of Legal Studies - Chairman
2) Dr. Kala Munat, Assistant Professor, MLSU, Udaipur - External Member
3) Dr. Raj Shree Choudhary, Assistant Professor, MLSU, Udaipur -External Member
4) Ms. Preeti Sanger, Assistant Professor -Internal Member
5) Mr. Amit Kumar, Assistant Professor - Internal Member
6) Mr. Amit Yadav, Assistant Professor - Internal Member
7) Ms. Asha Rawat, HOD & Assistant Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 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 January 2017. 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 LAW

19th January 2017

Minutes of Meeting of Board of Studies

The Board of Studies meeting of the Department of Law was held on 19th January 2017 in Room No. 135 at 11:00 am onwards to approve the new/changes in curriculum and Syllabus revision for session 2017-18.

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

1) Prof. (Dr.) P.S. Varshney, Dean, Faculty of Legal Studies - Chairman
2) Dr. Kala Munat, Assistant Professor, MLSU, Udaipur - External Member
3) Dr. Raj Shree Choudhary, Assistant Professor, MLSU, Udaipur -External Member
4) Ms. Preeti Sanger, Assistant Professor -Internal Member
5) Mr. Amit Kumar, Assistant Professor - Internal Member
6) Mr. Amit Yadav, Assistant Professor - Internal Member
7) Ms. Asha Rawat, HOD & Assistant Professor - Convener

Ms. Asha Rawat, (Head, Department of Law) 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 12-06-2016

Resolution: Minutes of the previous BOS of the Legal Studies department held on 12-06-2016 were discussed and approved.

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

Resolution: Ms. Asha Rawat (Head, Department of Law) presented departmental proposed activity that should be conducted related to curricular development, research development, and faculty development of Law.

Agenda 3: Review and approval of Existing Programmes/Courses

Resolution: Ms. Asha Rawat (Head, Department of Law) presented the ongoing syllabus of B.A LL.B (Hons.), BBA LL.B (Hons.), LL.B and LL.M. The BOS committee reviewed and approved the scheme and syllabus in the upcoming session 2017-18 **(Annexure 2)**

19/1/17

Agenda 4: 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 dissolved with thanks to the Chair and all the Board of Studies Members.

Fact
19/1/17

MEWAR UNIVERSITY
Chittorgarh-312901 (Raj.)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF LAW

19th January 2017

Annexure 1: Attendance Sheet

Following members were present in the Board of Studies meeting:

S.NO.	NAME OF MEMBERS		SIGNATURE
1.	Prof. (Dr.) P.S VARSHNEY	CHAIRMAN	
2.	Dr. Kala Munat, Assistant Professor, MLSU, Udaipur	External Member	
3.	Dr. Raj Shree Choudhary, Assistant Professor, MLSU, Udaipur	External Member	
4.	Mr. Amit Yadav Assistant Professor	MEMBER	
5.	Ms. Preeti Sanger Assistant Professor	MEMBER	
6.	Mr. Amit Kumar Assistant Professor	MEMBER	
7.	Ms. Asha Rawat	CONVENOR	

Annexure 1: Attendance Sheet

Prof. (Dr.) P.S. VARSHNEY

Chairman

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

Ref. No.: MU/RO/2017/ 594-A **26th May 2017**

OFFICE ORDER

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

The Board of Studies for the Department of Commerce is reconstituted as per Rule 12 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) S. P. Mathur, Dean, Faculty of Management and Commerce - Chairman
2) Prof. (Dr.) P. K. Jain, Dean, FMS, MLSU, Udaipur - External Member
3) Prof. (Dr.) H. Prasad, MLSU, Udaipur - External Member
4) Mr. Umesh Toshniwal, VP Marketing, Nitin Spinners Ltd. Bhilwara - Special Invitee
5) Mr. Rajesh Bhatt, Assistant Professor - Internal Member
6) Mr. Vikram Singh Rao, Assistant Professor - Internal Member
7) Mr. Nishant Dublish, Assistant Professor - Internal Member
8) Mr. Raj Singh, Assistant Professor - Internal Member
9) Mr. Abhishek Kumar - Alumni
10) Dr. Subodh Kumar Nalwaya, Head and Assistant Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 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 fourth week of May 2017. 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 COMMERCE

DATE: 27.05.2017

Minutes of Meeting of Board of Studies

The Board of Studies Meeting of the Department of Commerce was held on 27th May 2017 in Room No. 135 at 11:00 am onwards to approve the new/changes in curriculum and Syllabus revision for session 2017-18.

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

1) Prof. (Dr.) S. P. Mathur, Dean, Faculty of Management and Commerce	- Chairman
2) Prof. (Dr.) P. K. Jain, Dean, FMS, MLSU, Udaipur	- External Member
3) Prof. (Dr.) H. Prasad, MLSU, Udaipur	- External Member
4) Mr. Umesh Toshniwal, VP Marketing, Nitin Spinners Ltd. Bhilwara	- Special Invitee
5) Mr. Rajesh Bhatt, Assistant Professor	- Internal Member
6) Mr. Vikram Singh Rao, Assistant Professor	- Internal Member
7) Mr. Nishant Dublish, Assistant Professor	- Internal Member
8) Mr. Raj Singh, Assistant Professor	- Internal Member
9) Mr. Abhishek Kumar	-Alumni
10) Dr. Subodh Kumar Nalwaya, Head and Assistant Professor	- Convener

Agenda 1: Welcoming the New Members

Resolution: Dr. Subodh Kumar Nalwaya (Head, Department of Commerce) 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 2: To approve minutes of the previous BOS, held on 13-06-2016

Resolution: Minutes of the previous BOS of the Commerce Department held on 13-06-2016 were discussed and approved.

Subodh

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Agenda 3: Brief presentation of academic activities of the department before the BOS Committee by the convener

Resolution: Dr. Subodh Kumar Nalwaya (Head, Department of Commerce) presented a departmental activity report mentioning all the activities conducted related to curricular development, research and development, faculty development and Industrial collaboration.

Agenda 4: As per the recommendation of the previous BOS committee members, it is decided to introduce four new courses for the B.Com students for the upcoming session 2017-18. The courses are enclosed here. **(Annexure 2)**

- Bussines Economy
- Computer Application
- Environmental Management
- Profit Planning and Control

Agenda 5: Any other suggestions by BOS Committee
Resolution:

- To offer suggestions for identifying areas for the conduction of workshops/seminars etc. in the coming session.
- The syllabus should be designed as per market exposure and international market level.
- English Language Paper should be properly classified as (a) Reading Ability, (b) Writing Ability and (C) Spoken Ability.

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.

Subodh

MEWAR UNIVERSITY
Chittorgarh - 312901 (Rajasthan)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF COMMERCE

DATE: 27.05.2017

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Prof. (Dr.) S. P. Mathur, Dean, Faculty of Management and Commerce	Chairman	S.P. Mathur 27/5/17
2	Prof. (Dr.) P. K. Jain, Dean, FMS, MLSU, Udaipur	External Member	Prakash Jain 27/05/2017
3	Prof. (Dr.) H. Prasad, MLSU, Udaipur	External Member	Prasad 27/5/17
4	Mr. Umesh Toshniwal, VP Marketing, Nitin Spinners Ltd. Bhilwara	Special Invitee	Umesh 27/05/17
5	Mr. Rajesh Bhatt, Assistant Professor	Internal Member	27/5/17
6	Mr. Vikram Singh Rao, Assistant Professor	Internal Member	Vikram 27/05/2017
7	Mr. Nishant Dublish, Assistant Professor	Internal Member	27/5/17
8	Mr. Raj Singh, Assistant Professor	Internal Member	27/5/17
9	Dr. Subodh Kumar Nalwaya, Head and Assistant Professor	Convener	Subodh 27/5/17
10	Mr. Abhishek Kumar	Alumni	Abhishek 27/05/17

Business Economics

Unit 1 –

M.E. – Meaning, Nature, Scope, relationship with other sciences & its Significance, Economics applied to Business Decisions, Theory of firm & industry Demand Analysis – Law of demand, determinants of demand, demand curve, consumer surplus, Elasticity of demand & Demand forecasting.

Unit 2 –

Cost – Average, Marginal & total cost, Basic cost curves, Relation between production & cost, Break Even Analysis – Break Even point, Managerial use of B.E.P. and its limitation. Factors influencing P/V decisions.

Unit 3 –

Price output decisions, classification of markets. Structures and their making features, Pricing under Perfect
Competition and Monopoly. Profit Planning & Management – Types of Profit, some concepts related to profit, factors determining, profit in short & long term Dynamics of surplus, Theory & residual claimant theory of Profit.

Reference:

Managerial Economics – D. N. Dwivedi
Managerial Economics – Varshney & Varshney

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

Computers

Unit 1 –

Introduction – Defining Computers, features, History, Generations, Components, classification of computers, input-output devices, Types of computer memory, introduction to computers, Hardware and Software. Introduction to HTML – Applying Bold, Italic, underline, Strikethrough, overlie, marquee, images, Hyperlinks, Textbooks, Buttons, Checkboxes, Radio Buttons, ordered and Unordered List, Tables, FRAMESET, LEGEND. Operating System – Meaning, functions, dikes operating system bandits commands & elementary idea of the operating system.

Unit 2-

Introduction to Boolean Algebra: AND, OR NOT, NAND gates, Half – Adder, Full – Adder, Kannaugh Maps, Simplification. Introduction to computer network – Concepts of Networking, Advantages, classification of NETWORKS – LAN, MAN, WAN, VWAN, Usenet, Telnet. Concept of Green P.C.Concept of Screen Saver, Ergonomics, Nazis Schiedermannn Diagram, Warier – Orr Diagrams, Decision Trees, Decision Tables, HIPO, VROC, IPO, Data Dictionary Menu design, MIS, Anthony's classification, DSS, Software documentation.

Unit 3 –

WINDOWS introduction, utilities, shortcuts, working with word pad, MS Paint, MS Word, MS Excel Internet – What is internet, History, Importance, equipment, needed, www-meaning, procedure for E-mail, Transfer files to Computer

Reference:

Fundamental of Computers – Rajaraman
Computes Today – B. Sandra

Environmental Management

Unit 1

Renewable & Non Renewable Resources – Use & over utilization, Deforestation and its effects on forest & tibia people, Water Resources:- Use & over utilization of surface & ground water, flood, drought dams, benefits & problem, Mineral Resources:- Use & explanation, Food Resources:- World food problem, change causes by agriculture & over grazing effects of modern agriculture fertilizer, pesticide problem, change caused by Agriculture & over gazing effects of modern Agriculture fertilizers, pesticide problem. Energy Resources:- Growing energy needs use Alternate energy source, Land Resource:- Land as resource, land degradation, landside, soil erosion & desertification. Ecosystem:- concepts, function, structure, food chain, food webs, in following ecosystem, Forest Ecosystem, Grass land, Desert Land, Aquatic land.

Unit 2

Biodiversity & its Conservation:- Introduction, definition genetic species & ecosystem diversity, biodiversity it global, national & local levels, India as a mega diversity nation, threats to Biodiversity, Conservation of Biodiversity, Environmental pollution :- Definition , Causes, effect & control measure of Air pollution, Water, soil & marine, noise, thermal, nuclear hazards, Role of and Individual in prevention of pollution, Disaster management, Flood Earthquake land, Slide, Cyclone.

Unit 3

Social Issues in Environment:- From unstable to sustainable Development urban Problem related to energy, Resettlement & Rehabilitation of people, Environment ethics , Consumerism, Environment Protection Act, Climate change, global warming, acid rain, ozone-layer depletion & nuclear accidents, Air Act, Waters Act, wild life protection Act, Issues involved in enforcement of environmental legislation for public Awareness, Human population & Environmental:- Population growth, variations among national, population explosion- family welfare program, Environmental & Human health, Human Right, HIV/AIDS women's & child welfare, Role of Information Technology in environment.

Reference:

Environment Management by N.K. Oberai
Ecology, Environment & Development by K.L. Narsimha Murthy
Air Pollution – Causes & Effective Control by R.K. Arora

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH

Profit Planning & Control

Unit 1

Profit Management – Meaning, nature and concept, Kinds of profit theories of profit. Dynamic Surplus theory of profit, Risk and uncertainly theory, Monopoly theory Accounting profit and economic profit, role of profit, Profit policy, Profit limitation factor to set profit Standard.

Unit 2

Profit Planning and Control – Break even Analysis, Affects of cost change on B.E.P. Contribution Margin, Margin of safety. How to apply concept of Break even in Profit Management, P/V ratio Analysis, Standard Costing – Meaning, concept and nature, Advantages of standard costing, Limitations of standard costing. Procedure of cost control through standard costing, How to set standard, computation and Analysis.

Unit 3

Inventory Management, nature & concept of inventory control, Objective of inventory, objectives of inventory control barriers. Importance of Inventory control, factors affecting inventory control policy, Limitations. Reporting to management Reporting needs of different Management levels. Types of Reports, General Principles of Reporting, Report to the Board of Directors, Report to Top Management, Report to top divisional Management. Preparation of Reports, Reports to junior management level, use of Reports by management.

Reference:

Managerial Economics by P.L. Mehta
Financial Accounting and Management by R.K. Sharma & Shashi Kumar Gupta
Management Accounting by S.N. Maheshwari.

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

DEPARTMENT OF COMMERCE

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

Ref. No. MU/RO/2017/666-A **19th May, 2017**

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 12 of the statutes of Mewar University, as under:

SN	Name	Designation	Post
1	Prof. (Dr.) R K Paliwal	Professor & Dean, Faculty of Engg& Technology	Chairman
2	Mr. Esar Ahmad	Assistant Professor	Internal Member 1
3	Mr. ShashivendraDulawat	Assistant Professor	Internal Member 2
4	Prof. (Dr.) Gunwant Sharma	HoD, MNIT Jaipur	External Member1
5	Prof. (Dr.) VasudeoRamrakhiani	Former Professor & Head, MNIT Jaipur	External Member2
6	Mr. Saurabh Dadhich	Engineer, Ultratech Cement Ltd, Shambhupura	Member from Industry
7	Mr. Mohammad Akram Sheikh	AE, Govt of Rajasthan	Alumni Member
8	Mr. Avinesh Kumar	Asst. Professor & HOD	Convener

The term of reference for the Board of Studies are as provide in rule 12 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/Vice Chancellor.

The Convener of the meeting is advised to hold meeting of the BOS seeking Convenience of the Chairman in the third week of June, 2017. 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 charges as per the norms prescribed by the 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/HoD's (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: 15.06.2017

Minutes of Meeting of Board of Studies

Minutes of the 4th BOS of the Department of Civil Engineering meeting held on 15-06-2017 at 11.30 AM.

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

SN	Name	Designation	Post
1	Prof. (Dr.) R K Paliwal	Professor & Dean, Faculty of Engg& Technology	Chairman
2	Mr. Esar Ahmad	Assistant Professor	Internal Member 1
3	Mr. ShashivendraDulawat	Assistant Professor	Internal Member 2
4	Prof. (Dr.) Gunwant Sharma	HoD, MNIT Jaipur	External Member1
5	Prof. (Dr.) VasudeoRamrakhiani	Former Professor & Head, MNIT Jaipur	External Member2
6	Mr. Saurabh Dadhich	Engineer, Ultratech Cement Ltd, Shambhupura	Member from Industry
7	Mr. Mohammad Akram Sheikh	AE, Govt of Rajasthan	Alumni Member
8	Mr. Avinesh Kumar	Asst. Professor & HOD	Convener

At the outset, Mr. Avinesh Kumar, 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 13-06-2016

Resolution: Minutes of the previous BOS of the Civil Engineering Department held on 13-06-2016 were discussed and approved.

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

Resolution: Mr. Avinesh Kumar (Head, Civil Engineering) presented 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 and Structural

Engineering) and approved the scheme and syllabus of M. Tech Programme (Transportation Engineering and Structural Engineering) for the session 2017-18. **(Annexure 2)**

Agenda 4: Introduction of New Programme/Course

Resolution:

1. The BOS Committee approved the syllabus of three new courses in M. Tech. Structural Engineering programme from session 2017-18 is mentioned below. **(Annexure 3)**

- Sustainable materials and construction
- Advanced Foundation Engineering
- Design of Offshore Structures

2. The BOS Committee approved the syllabus of five new courses in M. Tech. Transportation Engineering programme from session 2017-18 is mentioned below. **(Annexure 4)**

- Transportation Infrastructure Management
- Transportation Data Analysis
- Transportation Policy and Regulations
- Transportation Safety
- Sustainable Transportation

3. The BOS Committee approved the syllabus of five new courses in B. Tech. Civil Engineering programme from session 2017-18 is mentioned below. **(Annexure 5)**

- Sustainable Construction Method
- Probability Methods in Civil Engineering
- Energy-Efficient Building Design
- Structural Health Monitoring (SHM)
- Geo-synthetics and Reinforced Soil Structures

Agenda 5: Any other suggestions by BOS Committee

Resolution: The BOS Committee suggested revision of B. Tech (Civil Engineering) Programme and approved the revised scheme and syllabus for 2017-18 sessions.

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.

Annexure 1: Attendance Sheet

SN	Name	Designation	Post	Signature
1	Prof. (Dr.) R K Paliwal	Professor & Dean, Faculty of Engg & Technology	Chairman	15/06/2017
2	Mr. Esar Ahmad	Assistant Professor	Internal Member 1	
3	Mr. Shashivendra Dulawat	Assistant Professor	Internal Member 2	15.06.17
3	Prof. (Dr.) Gunwant Sharma	HoD, MNIT Jaipur	External Member1	
4.	Prof. (Dr.) Vasudeo Ramrakhiani	Former Professor & Head, MNIT Jaipur	External Member2	
5.	Mr. Saurabh Dadhich	Engineer, Ultratech Cement Ltd, Shambhupura	Member from Industry	
6.	Mr. Mohammad Akram Sheikh	AE, Govt of Rajasthan	Alumni Member	
7.	Mr. Avinesh Kumar	Assistant Professor &HOD	HOD-Convener	15-06-2017

15-06-2017

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

M TECH: STRUCTURAL ENGINEERING
Sustainable materials and construction

UNIT – I

Green Building Concept: Overview of green building movement; Concept of Green building and sustainable development; Issues and strategies of Green building and sustainable development; Objectives Principals and Benefits of Green building design; Introduction to High performance building; integrated design process of high performance building; Green project requirements and strategies; Overview of various green rating systems worldwide

UNIT – II

Green Building Materials and Indoor Environment Quality: Introduction; Low emitting materials; Building and material reuse; Construction waste management; Regional materials; Life cycle cost assessment of building materials and products; Factors affecting indoor environment quality; Ventilation and filtration; Building materials and finishes- Emittance level; Indoor Environment quality best practice.

UNIT – III

Water: Reduce, Reuse and Recycle: Introduction; Waste water strategy and water reuse/recycling; Water fixtures and water use reduction strategies.

UNIT – IV

Energy efficient designs: Passive cooling and day lighting- Active solar and photovoltaic- Building energy analysis methods-Building energy simulation- Building energy efficiency standards- Lighting system design- Lighting economics and aesthetics- Impacts of lighting efficiency- Energy audit and energy targeting Technological options for energy management. Thermal comfort

UNIT – V

IGBC Guidelines: Introduction; IGBC green new building Rating system – Overview and process – project checklist; Sustainable architecture and design; Site selection and planning; Water conservation and energy efficiency; Building materials and resources; Indoor Environment quality; Innovation and development

Reference Books:

1. Sam Kubba, "Hand book of Green building Design and construction", Elsevier Architecture Press.
2. Abe Kruger and Carl Seville, "Green building: principals and practice in residential construction", Cengage Learning.
3. IGBC Green New building rating system (Version 3.0), March 2015.
4. GRIHA Manual Volume-1: Introduction to National Rating System by Ministry of New and Renewable Energy, Government of India and the energy and resource institute, New Delhi.
5. Kibert, C. "Sustainable Construction: Green Building Design and Delivery", John Wiley & Sons, 2005

M TECH: STRUCTURAL ENGINEERING
Advanced Foundation Engineering

UNIT – I

Shallow Foundations: Bearing Capacity, Terzaghis analysis, Computations of bearing capacity factors. Skempton's analysis. Meyerhof's analysis. Balla's theory. Hansen's theory. Design of Shallow Foundations.

UNIT – II

Pile Foundation: Use of piles, Types of piles, Design of Piles, Group action in cohesive and cohesionless soils. Negative skin fricton. Laterally loaded piles. Piles under inclined loads, pile load test, Hrennikoff Method.

UNIT – III

Engineering with Geosythetics: Introduction Basic Mechanism of reinforced earth strength characteristics of reinforced soil.

UNIT – IV

Bridge Substructures: Introduction, elements of bridge substructure, stability analysis of well foundation, design of pie & abutments, sinking of wells.

UNIT – V

Marine Substructures: Introduction, Types of Marine structures elements, design criteria, design of gravity wall, piled wharf structure breakwaters

Reference Books:

1. Braja M. Das, "Principles of Foundation Engineering." PWS Publishing, USA. 1999
2. Bowles, J.E., 1997. "Foundation Analysis and Design", Fifth ed. McGraw-Hill, Singapore.
3. Murthy, V.N.S., 2001. "Geotechnical Engineering: Principles and Practices of Soil Mechanics and Foundation Engineering', Marcel Dekker, Inc. New York.
4. Ranjan, G. and Rao, A. S. R., 1991, 2000, 2007. "Basics and Applied Soil Mechanics", New Age International.
5. Woodward, J. and Tomlinson, M. 1994, "Pile Design and Construction Practice" Chapman &
6. Hall Poulos, H.G. and Davis, E.H. 1980, "Pile Foundation Analysis and Design" Wiley and Sons.

M TECH: STRUCTURAL ENGINEERING
Design of Offshore Structures

UNIT- I

Loads and structural forms of different types of offshore structures; Elements of single d.o.f. system subjected to free and forced vibration.

UNIT- II

Analysis for transient and steady state force; Equivalent damping for nonlinear systems; Dynamics of multi d.o.f. systems; Eigen values and vectors; Iterative and transformation methods.

UNIT- III

Mode superposition. Fourier series and spectral method for response of single d.o.f. systems; Vibrations of bars, beams and cones with reference to soil as half space.

UNIT- IV

Behavior of concrete gravity platform as a rigid body on soil as a continuum; short and long term statistics of wind;

UNIT- V

Static wind load; Effect of size, shape and frequency; Aerodynamic admittance function and gust factor, spectral response due to wind for various typres of structures; Wave loads by Morisons equation; Static and dynamic analysis of fixed structures; Use of approximate methods.

Reference Books:

1. Brebbia C.A. Walker, Dynamic Analysis of Offshore Str., Newnes Butterworth
2. Sarpakaya T and Isaacson M., Mechanics of wave forces on offshore structures, Van Nostrand Reinhold New York,
3. Hallam M.G. Heaf N.J. and Wootton, L.R., Dynamics of Marine Structures, CIRIA Publications Underwater Engg., Group , London
4. Graff W.J., Introduction to offshore Structures, Gulf Publishing Co., Houston, Taxas
5. Clough R.W. and Penzine J., Dynamic of Structures - II Ed., McGraw Hill Book CO.
6. Simiu E. and Scanlan R.H., Wind Effects on Structures, Wiley, New York 1978
7. Codes of Practice (latest versions) , Such as API RP-2A ,Bureau Veritas etc.
8. Proceedings of Offshore Technology Conference (OTC) Behavior of Offshore Structures (BOSS) and other Conferences on offshore Engineering

Mewar University
Department of Civil Engineering
MTech, Transportation Engineering
Transportation Infrastructure Management

Unit I

Introduction to Transportation Infrastructure Management, Overview of transportation infrastructure systems, Importance of infrastructure management for efficient transportation networks, life cycle management of infrastructure assets, Asset management principles and practices

Unit II

Inventory and Condition Assessment of Transportation Infrastructure, Inventory techniques for collecting data on transportation assets, Condition assessment methodologies for infrastructure elements, Performance measures and evaluation of infrastructure conditions, Non-destructive testing methods for infrastructure assessment

Unit III

Maintenance and Rehabilitation Strategies for Transportation Infrastructure, Preventive and corrective maintenance approaches, Asset preservation techniques for extending infrastructure lifespan, Rehabilitation and retrofitting strategies for aging infrastructure, Bridge management systems and techniques

Unit IV

Asset Management and Decision Support Systems, Asset management frameworks and processes, Data-driven decision making in infrastructure management, Predictive modeling and analysis for infrastructure maintenance, Integration of asset management systems with GIS and remote sensing technologies

Unit V

Performance Evaluation and Optimization in Infrastructure Management, Performance indicators and benchmarking in infrastructure management, Optimization techniques for infrastructure planning and decision making, Cost-benefit analysis and economic evaluation of infrastructure projects, Sustainability considerations in infrastructure management

Recommended Reference Books:

- "Transportation Decision Making: Principles of Project Evaluation and Programming" by Kumares C. Sinha and Samuel Labi
- "Transportation Engineering and Planning" by C.S. Papacostas and P.D. Prevedouros
- "Transportation Infrastructure Engineering: A Multimodal Integration" by Lester A. Hoel, Nicholas J. Garber, and Adel W. Sadek
- "Transportation Infrastructure: Engineering, A Multimodal Introduction" by Samuel Labi and Sinan Senel
- "Asset Management: A Systematic Approach to Factor-Based Investing" by Andrew Ang

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Mewar University
Department of Civil Engineering
MTech, Transportation Engineering
Transportation Data Analysis

Unit I

Introduction to Transportation Data Analysis, Overview of transportation data sources and types, Data collection methods in transportation, Data quality assurance and data management techniques, Descriptive Statistics and Data Visualization, Statistical measures and summary statistics, Data visualization techniques in transportation, Exploratory data analysis and graphical representation.

Unit II

Probability and Statistical Inference, Probability theory and its application in transportation data analysis, Hypothesis testing and confidence intervals, Statistical inference techniques for transportation data, Regression Analysis, Simple and multiple linear regression models, Model specification and interpretation of results, Diagnostics and model validation techniques, Nonlinear regression models in transportation.

Unit III

Time Series Analysis, Introduction to time series data in transportation, Trend analysis and forecasting techniques, Seasonality and decomposition methods, ARIMA models for time series analysis.

Unit IV

Spatial Analysis, Spatial data analysis techniques in transportation, Geographical Information Systems (GIS) and transportation applications, Spatial autocorrelation and cluster analysis, Network Analysis, Network representation and analysis, Shortest path algorithms and network optimization, Traffic flow analysis and congestion modeling

Unit V

Multivariate Analysis and Data Mining, Multivariate statistical techniques for transportation data analysis, Cluster analysis and classification techniques, Data mining approaches for transportation insights.

Recommended Reference Books:

1. "Transportation Data Analysis" by K. C. Sinha and S. Labi
2. "Analyzing Transport Networks: An Introduction" by Asad J. Khattak and Luis G. Willumsen
3. "Transportation Planning Handbook" by ITE (Institute of Transportation Engineers)
4. "Introduction to Probability and Statistics for Engineers and Scientists" by Sheldon M. Ross
5. "Applied Regression Analysis and Generalized Linear Models" by John Fox
6. "Time Series Analysis: Forecasting and Control" by George E.P. Box, Gwilym M. Jenkins, and Gregory C. Reinsel

Mewar University
Department of Civil Engineering
MTech, Transportation Engineering
Transportation Policy and Regulations

Unit I

Introduction to Transportation Policy and Regulations, Overview of transportation policy and its importance, Evolution of transportation regulations and their role in shaping transportation systems, Key stakeholders in transportation policy and regulations

Unit II

Policy Development and Implementation, Process of transportation policy development, Analysis of transportation policy goals and objectives, Policy instruments and tools for achieving desired outcomes, Evaluation and assessment of policy effectiveness

Unit III

Regulatory Framework in Transportation, Introduction to transportation regulations and their purpose, Regulatory agencies and their roles, Regulatory mechanisms and processes, Legal and administrative aspects of transportation regulations

Unit IV

Transportation Planning and Policy, Relationship between transportation planning and policy, Integration of transportation planning and policy objectives, Transportation demand management strategies and their policy implications, Case studies on successful transportation planning and policy integration

Unit V

Emerging Issues in Transportation Policy and Regulations, Transportation technology advancements and their impact on policy, Intelligent Transportation Systems (ITS) and policy implications, Shared mobility services and their regulatory challenges, Addressing equity and social justice in transportation policy

Recommended Reference Books:

- "Transportation in the New Millennium: Proceedings of the 4th International Conference of the Hong Kong Society for Transportation Studies" edited by H.Z. Lo and William H.K. Lam
- "Transportation and Information: Trends in Technology and Policy" by J.P. Lesort and J. Orfeuil
- "Policy Analysis: Concepts and Practice" by David L. Weimer and Aidan R. Vining
- "Transportation Planning Handbook" by ITE (Institute of Transportation Engineers)
- "Transportation Planning: Policy, Analysis, and Modelling" by Kumares C. Sinha and Samuel Labi
- "Transportation Policy" by Kenneth J. Button and David A. Hensher
- "Regulation and Public Interests: The Possibility of Good Regulatory Government" by Steven P. Croley
- "Transportation Regulation and Public Policy" by John C. Morrall

Mewar University
Department of Civil Engineering
MTech, Transportation Engineering
Transportation Safety

Unit I

Introduction to Transportation Safety, Overview of transportation safety and its importance, Historical perspectives on transportation safety, Key safety concepts and definitions, Role of safety in transportation planning and policy

Unit II

Crash Analysis and Investigation, Crash data collection and analysis methods, Crash causation theories and models, Crash investigation techniques and tools, Crash reconstruction and analysis

Unit III

Safety Management Systems, Introduction to safety management systems (SMS), Components of an effective SMS, Safety performance indicators and measurement, Safety audits and inspections

Unit IV

Human Factors in Transportation Safety, Human factors and their impact on transportation safety, Driver behavior and performance, Safety culture and organizational factors, Human-centered design for transportation systems

Unit V

Emerging Trends in Transportation Safety, Intelligent Transportation Systems (ITS) and safety applications, Connected and autonomous vehicles and their safety implications, Vulnerable road user safety (pedestrians, cyclists, etc.), Safety in public transportation systems

Reference Books:

- "Intelligent Transport Systems: Technologies and Applications" by Asad Khattak and Pravin Varaiya
- "Safety and Security in Transit Environments: An Interdisciplinary Approach" by Vania Ceccato
- "Human Factors in Transportation: Social and Technological Evolution Across Maritime, Road, Rail, and Aviation Domains" by Neville A. Stanton, Paul M. Salmon, and Laura A. Rafferty
- "Human Factors in Aviation" by Eduardo Salas, Dan Maurino, and James L. Taylor
- "Transportation Safety Management: System Elements for Planning, Deployment, and Operation" by Michael D. Meyer and Eric J. Miller
- "Traffic Safety" by Leonard Evans
- "Accident Reconstruction: Principles and Practice" by Donald R. Sweeney
- "Transportation Safety in an Age of Deregulation" by Leon N. Moses

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

Mewar University
Department of Civil Engineering
MTech, Transportation Engineering
Sustainable Transportation

Unit I

Introduction to Sustainable Transportation, and its importance in addressing environmental and social challenges, Overview of key concepts and principles in sustainable transportation, Examination of the environmental impacts of traditional transportation systems (e.g., greenhouse gas emissions, air pollution, resource depletion), Case studies highlighting successful sustainable transportation initiatives and their outcomes.

Unit II

Sustainable Urban Mobility Planning, Introduction to sustainable urban mobility planning and its role in creating sustainable transportation systems, Examination of different urban transportation modes (e.g., walking, cycling, public transit) and their benefits, Analysis of integrated transportation and land use planning approaches, Overview of strategies to promote active transportation and reduce car dependency in cities, Case studies of cities that have successfully implemented sustainable urban mobility plans.

Unit III

Sustainable Transportation Technologies, Exploration of sustainable transportation technologies, including electric vehicles, hydrogen fuel cells, and biofuels, Assessment of the environmental benefits and challenges associated with different alternative fuel options, Introduction to intelligent transportation systems and their role in optimizing transportation efficiency, Examination of emerging technologies and trends in sustainable transportation.

Unit IV

Sustainable Freight and Logistics, Overview of sustainable freight and logistics systems and their role in reducing emissions and improving efficiency, Examination of green logistics strategies, such as freight consolidation, route optimization, and modal shift, Analysis of the potential of alternative fuels and technologies in the freight sector, Case studies of successful sustainable freight and logistics initiatives.

Unit V

Policy and Planning for Sustainable Transportation, Introduction to policy and planning frameworks for promoting sustainable transportation, Examination of regulatory measures and incentives to encourage sustainable transportation choices, Analysis of funding mechanisms for sustainable transportation projects, Overview of international best practices in sustainable transportation policy and planning.

References:

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1. McKinnon, A. (2016). Decarbonising logistics: Distributing goods in a low carbon world. Kogan Page Publishers.
2. Tavasszy, L. A., & Jaller, M. (2018). Sustainable freight transport: Theory, models, and case studies. Springer
3. Zhang, X., & Gallagher, K. S. (2016). Sustainable transportation energy pathways: A research summary for decision makers. Joule, 1(3), 537-543.
4. May, A. D., et al. (2019). Electric vehicles and the decarbonisation of road transport: Insights from the TEF and other studies. Transportation Research Part D: Transport and Environment, 71, 1-28.
5. Cervero, R., & Kockelman, K. (1997). Travel demand and the 3Ds: Density, diversity, and design. Transportation Research Part D: Transport and Environment, 2(3), 199-219.
6. International Transport Forum. (2019). ITF Transport Outlook 2019: Funding Transport. OECD Publishing.
7. Banister, D. (2008). Sustainable transportation: Energy, environment and climate change. Routledge.
8. Litman, T. (2019). Introduction to sustainable transportation: Policy, planning and implementation. Victoria Transport Policy Institute.
9. Sussman, J. M., & Weiner, E. (2014). Introduction to transportation systems. Artech House.
10. Ryley, T. J., & Chapman, L. (2018). Transport and climate change. Emerald Publishing Limited

Sustainable Construction Methods

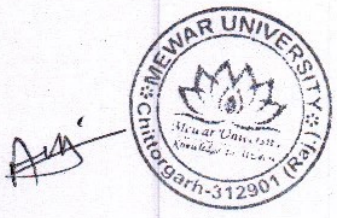
Course Objective:

1.Classify the sustainable construction materials. 2. Apply cutting-edge construction technologies. 3. Evaluate different sustainable construction methods. 4. Apply different rating systems of construction/buildings as a professional. 5. Apply life cycle approach to optimize the performance of green construction materials

UNIT – I	Types of foundations and construction methods. Basics of Formwork and Staging. Common building construction methods (conventional walls and slabs; conventional framed structure with blockwork walls). Modular construction methods for repetitive works.Precast concrete construction methods. Basics of Slip forming for tall structures. Basic construction methods for steel structures. Basics of construction methods for Bridges.
UNIT – II	Identification of cutting-edge sustainable construction materials, technologies,and project management strategies for use in the construction industry and evaluation of their potential to reduce the negative environmental impacts of construction activity.
UNIT – III	Study and evaluation of current LEED and GRIHA rating for construction system. Detailed case study and analysis of highly successful recent "green construction projects". Guidance to students for the LEED Green Associate professional licensing examination.
UNIT - IV	Environmental impact of materials; life-cycle assessment; material selection to optimize performance; design, evaluation, and production of green construction materials

References

1. Rebecca L. Henn; Andrew J. Hoffman (2013), Constructing Green the Social Structures of Sustainability (Urban and Industrial Environments), MIT Press.
2. Steve Goodhew Sustainable Construction Processes: A Resource Text ISBN: 978-1-405- 18759-6 May 2016 Wiley-Blackwell.
3. Kim S. Elliott, Precast Concrete Structures – 12 June 2019, CRC Press Taylor and Francis.
4. S.B.Marinković, Life cycle assessment (LCA) aspects of concrete, Woodhead Publishing Series in Civil and Structural Engineering 2013, Pages 45-80



Probability Methods in Civil Engineering

Course Objective:

1. Apply probabilistic techniques for the analysis of complex Civil Engineering structures using advanced techniques. 2. Demonstrate mathematical and statistical knowledge and skills to be applied in various civil engineering structures. 3. Apply the laws of logic to mathematical statements. 4. Develop mathematical thinking in the conduct of different experiments and presentation of results precisely

UNIT – I	Introduction: Role of Probability in Civil Engineering Problems, Random Events: Definition of basic random events; Application of set theory in definition of composite event operations; Probability of events and definition of probability axioms; Solution of real life examples from Civil Engineering.
UNIT – II	Random Variables: Definition of random variables – discrete and continuous; Probability definitions – PMF, PDF, CDF; Moments and expectations. Functions of Random Variables: Definition of probability distributions of functions of single random variables – exact methods and approximate methods; Moments and expectations of functions – direct and indirect methods.
UNIT – III	Multiple Random Variables: Definition of joint, marginal, and conditional probability distributions; Definitions of moments and expectations, including the definition of correlation coefficient; Functions of multiple random variables. 8 IV Common Probability Models: Discrete random variables – binomial distribution, Poisson's distribution; Continuous random variables – exponential distribution, gamma distribution; Central limit theorem; Normal and lognormal distributions.
UNIT - IV	Statistics and sampling: Goodness of fit tests; regression and correlation analyses; estimation of distribution parameters from statistics; hypothesis testing and significance; Bayesian updating of distributions.

References

1. Papoulis, A, and S. U. Pillai (2002), Probability, Random Variables and Stochastic Processes,McGrawHill, New York.
2. Richard A. Jonson and C. B. Gupta (2005), Miller and Freund's Probability and Statistics forEngineers, Pearson Education, Inc., United States.
3. West M. and J. Harrison (1997), Bayesian Forecasting and Dynamic Models, SpringerVerlag,New York.
4. Ang, A. H-S., and Tang, W., H. "Probability concepts in engineering: Emphasis on applications incivil and environmental engineering." Wiley.
5. Kottegoda, N. T., and Rosso, R. "Applied Statistics for Civil and Environmental Engineers."Wiley.
6. Ross, S. "A first course on probability." Prentice Hall

Energy-Efficient Building Design

Course Objective:

1. To provide students with a comprehensive understanding of the principles and techniques involved in designing energy-efficient buildings.
2. To develop the necessary skills and knowledge to assess, analyze, and optimize energy performance in building design.
3. To familiarize students with the latest technologies, materials, and strategies for energy-efficient building design.
4. To enable students to integrate sustainable design principles and practices into their architectural or engineering projects.
5. To cultivate critical thinking and problem-solving abilities in addressing energy efficiency challenges in the built environment.

UNIT – I	Introduction to Energy-Efficient Building Design: Overview of energy-efficient building design principles, Importance of energy efficiency in buildings, Energy codes and standards for buildings, Building energy simulation tools and techniques, Energy auditing and benchmarking.
UNIT – II	Building Envelope and Insulation: Thermal insulation and its role in energy efficiency, Designing and selecting energy-efficient windows and glazing systems, Strategies for minimizing air leakage and improving insulation in walls and roofs, Thermal bridging and its impact on energy performance, Innovative envelope materials and technologies
UNIT – III	HVAC Systems and Energy Management: Design and selection of energy-efficient HVAC systems, Efficient heating and cooling technologies, Energy recovery ventilation systems, Building automation and energy management systems, Strategies for optimizing HVAC system performance
UNIT - IV	Lighting and Daylighting Design: Energy-efficient lighting design principles, Selection of efficient lighting fixtures and controls, Daylighting strategies for reducing energy consumption, Integration of natural and artificial lighting systems, Lighting design simulations and calculations

References

1. "Energy-Efficient Building Systems: Green Strategies for Operation and Maintenance" by Lal Jayamaha
2. "Energy-Efficient Building: Principles and Practice" by Marco Sala and Alain Renaud
3. "Energy-Efficient Building Design: Guidelines for Sustainable Design and Construction" by Roberto Berjano
4. "Passive and Low Energy Architecture: Design Tools and Strategies" edited by Mat Santamouris
5. "Energy-Efficient Building Materials: Solar Control and Thermal Comfort" by Luisa F. Cabeza and Inés S. González

Structural Health Monitoring (SHM)

Course Objective:

1. Understand the fundamental concepts and principles of Structural Health Monitoring (SHM).
2. Identify and evaluate different types of sensors and monitoring systems used in SHM.
3. Apply appropriate data acquisition techniques for SHM applications.
4. Analyze and interpret data obtained from monitoring systems.
5. Develop and implement algorithms for structural damage detection and localization.
6. Evaluate the performance and reliability of SHM systems.
7. Apply SHM techniques to assess the health and performance of various structures.
8. Demonstrate knowledge of current trends and emerging technologies in SHM.

UNIT – I	Introduction to Structural Health Monitoring (SHM): Overview of structural health monitoring and its significance, Objectives and benefits of SHM, Sensors and data acquisition systems, Signal processing techniques for SHM, SHM in the context of structural integrity and safety
UNIT – II	Structural Modeling and Damage Detection: Structural modeling for damage detection, Identification of modal parameters, Damage detection algorithms and methods, Vibration-based damage detection techniques, Finite element model updating for damage assessment
UNIT – III	Sensing Technologies for SHM: Overview of sensing technologies for SHM, Strain gauges and displacement sensors, Acoustic emission and ultrasonic testing, Fiber optic sensors and distributed sensing, Wireless sensor networks for SHM
UNIT - IV	Data Analysis and Decision-Making: Data analysis methods for SHM, Statistical analysis and pattern recognition techniques, Machine learning algorithms for damage classification, Risk assessment and decision-making based on SHM data, Integration of SHM with structural maintenance and management

Text Book:

1. "Structural Health Monitoring: An Advanced Signal Processing Perspective" by Jayantha Ananda Epaarachchi and Alex M. Remennikov
2. "Structural Health Monitoring: A Machine Learning Perspective" by Jeong-Tae Kim and Arunprakash P. Karunanithi
3. "Structural Health Monitoring of Civil Infrastructure Systems" edited by Vistasp M. Karbhari
4. "Structural Health Monitoring: A Nonlinear Dynamics Approach" by Robert L. Mullen
5. "Smart Structures: Innovative Systems for Seismic Response Control" by Victor C. Li and Sai K. Vanapalli

Geo-synthetics and Reinforced Soil Structures

Course Objective:
1. Identify the type of Geosynthetic and their relevance.2. Analyze &compute different properties of Geosynthetics.3. Understand the emerging trends of Geosynthetic in geotechnical applications.4. Design the Reinforced Earth Walls using Geosynthetic material.5. Design the Reinforced Foundation using Geosynthetic materials.

UNIT – I	Introduction to Geosynthetics, types of geosynthetics, artificial and natural geosythetics and their applications, manufacture of geosynthetics, strength of reinforced soils, testing of Geosynthetics 8 II Drainage application of geosynthetics, filtration applications of geosynthetics, erosion control using geosynthetics. Geosynthetics in flexible payment, introduction to geosyenthitcs in landfills, geosynthetics for construction of landfills.
UNIT – II	Sustainable infrastructure development, different types of soil retaining structures, design codes for reinforced soil retaining walls, construction aspects of geosythetics reinforced soil retaining wall, testing requirements for reinforced soil retaining walls, geosynthetic reinforced soil embankments
UNIT – III	Design of reinforced soil retaining walls – simple geometry, design of reinforced soil retaining walls – sloped backfill soil, soil embankments supported on geocell mattresses, geosynthetic reinforced pile systems for high embankments
UNIT - IV	Reinforced soil for supporting shallow foundations, response of footings resting on reinforced foundation soils, bearing capacity analysis of footings resting on reinforced foundation soils, carbon footprint analysis

References

1. Koerner, R.M. "Designing with Geosynthetics", Prentice Hall, New Jersey, USA, 4thedition, 1999.
2. Jewell, R.A., "Soil Reinforcement with Geotextiles", Special Publication No. 123,CIRIA, Thomas Telford. London, UK, 1996.
3. Geosynthetics - New Horizons, Eds. G.V. Rao, PK Banerjee, J.T. Shahu, G.V. Ramana,Asian Books Private Ltd., New Delhi, 2004.
4. Hoe I. Ling, Guido Gottardi , Daniele Cazzuffi , Jie Han , Fumio Tatsuoka "Design andPractice of Geosynthetic-Reinforced Soil Structures"
5. Sanjay Kumar Shukla, Erol Guler "Advances in Reinforced Soil Structures"

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/2017/ 678-B **22June, 2017**

OFFICE ORDER

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

The Board of Studies for the Department of Mathematicsis reconstituted as per Rule12 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) R. K. Paliwal, Dean, Faculty of Science & Technology - Chairman
2) Prof.(Dr). JPN Ojha, Retd. Principal, MLV, Govt College Bhilwara - External Member
3) Mr. Sanjeev Sharma, Assistant Professor - Internal Member
4) Pramod Mehta, Assistant Professor - Internal Member
5) Ms. Aruna Goyal - Alumni
6) Ms. Vandana Malviya, Assistant Professor & Head - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 or 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 month of July 2017. 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 MATHEMATICS

DATE: 22.07.2017

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department of Mathematics meeting held on 22-07-2017 at 11.30AM.

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

1. Prof. (Dr.) R K Paliwal, Dean, Faculty of Science & Technology - Chairman
2. Prof. (Dr). JPN Ojha, Retd. Principal, MLV, Govt. College Bhilwara - External Member
3. Mr. Sanjeev Sharma, Assistant Professor - Internal Member
4. Mr. Pramod Mehta, Assistant Professor - Internal Member
5. Ms. Aruna Goyal - Alumni
6. Ms. Vandana Malviya, Head, Mathematics - Convener

At the outset, Ms. VandanaMalviya, Convener, warmly welcomed all the board members.

Agenda 1:To approve minutes of the previous BOS, held on 3-12-2016

Resolution: Minutes of the previous BOS of the Mathematics Department held on 3-12-2016.were discussed and approved.

Agenda 2: Introduction of Research Project in III and IV sem. (Annexure 2)

Resolution: On the suggestion of the expert in III and IV sem Minor and Major Research project to be addin the curriculum of the M.Sc Mathematics two-year full-time program.

Agenda 3: The Revision of the scheme and syllabus of M.Sc. Mathematics. (Annexure 2)

Resolution: The BOS Committee Members discuss and approve the revised scheme and syllabus with four core and three elective papers in the I and II semesters.

Agenda 4: Interchange the courses in B.Sc.(General) (Annexure 3)

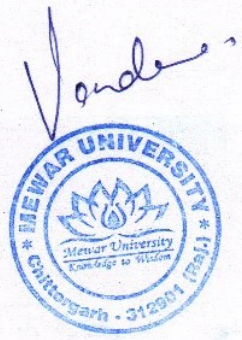
Resolution: The BOS approves the interchange of the course

- Real Analysis and Analytical Geometry from III to IV sem.
- Algebra from IV to III sem.
- Vector and Integral Calculus from IV to V sem.
- Linear Algebra and Probability and Statistics from V semester to VI semester.
- Boolean algebra from VI semester to III semesters.

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 dean appreciated the board for valuable suggestions. The Meeting ended with a vote of thanks to the chair.



MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF MATHEMATICS

DATE: 22.07.2017

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Dean, Faculty of Science & Technology	Chairman	
2	Prof.(Dr). JPN Ojha,Retd. Principal, MLV, Govt College Bhilwara	External Member	
3	Mr. Sanjeev Sharma, Assistant Professor, Mathematics	Internal Member	
4	Pramod Mehta, Assistant Professor, Mathematics.	Internal Member	22/07/17
5	MsArunaGoyal	Alumni	Aruna 22/7/2017
6	Ms. VandanaMalviya, Head, Mathematics.	Convener	
		Special Invitee (if any)	

Mewar University, Chittorgarh

M. Sc (MATHEMATICS) 2017-19

I SEMESTER

Sr. No	Course Code	Course Title	Contact hours per Week			Credit Hour	Teacher Assesment	Pre-Final (Subjective)	External Examination / Viva- Voice	Total Marks
			L	T	P					
1	MTMS-101	Abstract algebra	4	0	0	4	20	30	50	100
2	MTMS-102	Analysis	4	0	0	4	20	30	50	100
3	MTMS-103	Differential Geometry	4	0	0	4	20	30	50	100
4	MTMS-104	Topology	4	0	0	4	20	30	50	100
5	MTMS-105	Elective-I (Optimization Techniques-I)	4	0	0	4	20	30	50	100
6	MTMS-106	Elective-II (Number Theory-I)	4	0	0	4	20	30	50	100
7	MTMS-107	Elective-III (Computer Programming in C &	4	0	0	4	20	30	50	100
TOTAL			**28**	**0**	**0**	**28**	**140**	**210**	**350**	**700**

II SEMESTER

Sr. No	Course Code	Course Title	Contact hours per Week			Credit Hour	Teacher Assesment	Pre-Final (Subjective)	External Examination / Viva- Voice	Total Marks
			L	T	P					
1	MTMS-201	Mechanics	4	0	0	4	20	30	50	100
2	MTMS-202	Special Functions	4	0	0	4	20	30	50	100
3	MTMS-203	Relativity and Cosmology	4	0	0	4	20	30	50	100
4	MTMS-204	Functional analysis	4	0	0	4	20	30	50	100
5	MTMS-205	Elective-I (Optimization techniques-II)	4	0	0	4	20	30	50	100
6	MTMS-206	Elective-II (Number Theory-II)	4	0	0	4	20	30	50	100
7	MTMS-207	Elective-III (Computer Programming of Numerical Methods)	4	0	0	4	20	30	50	100
TOTAL			**28**	**0**	**0**	**28**	**140**	**210**	**350**	**700**

III SEMESTER

Sr. No	Course Code	Course Title	Contact hours per Week			Credit Hour	Teacher Assesment	Pre-Final (Subjective)	External Examination / Viva- Voice	Total Marks
			L	T	P					
1	MTMS-301	Research Methodology	4	0	0	4	20	30	50	100
2	MTMS-302	Elective-I (Integral Transforms)	4	0	0	4	20	30	50	100
3	MTMS-303	Elective-II(Modeling and Simulation)	4	0	0	4	20	30	50	100
4	MTMS-304	Project (Research Work/ Training)	12	0	0	12	100	0	200	300
TOTAL			**24**	**0**	**0**	**24**	**160**	**90**	**350**	**600**

IV SEMESTER

Sr. No	Course Code	Course Title	Contact hours per Week			Credit Hour	Teacher Assesment	Pre-Final (Subjective)	External Examination / Viva- Voice	Total Marks
			L	T	P					
1	MTMS-401	Elective based on Project (Fluid Dynamics/ Special Function)	4	0	0	4	15	0	85	100
2	MTMS-402	Project (Research Work/ Training)	16	0	0	16	100	0	300	400
TOTAL			**20**	**0**	**0**	**20**	**115**	**0**	**385**	**500**

	Electives for semester-I		Electives for semester-II		Electives for semester-III
	1.Tensor Analysis	1.	Computer Programming of Numerical Methods		1.Mathematical modeling in biology and medicine
	2.Discrete Mathematics - I	2.	Discrete Mathematics – II		2.Fuzzy sets and their applications
	3.Optimization Techniques-I	3.	Optimization techniques-II		3.Integral Transforms
	4.Mathematical Theory of Statistics- I	4.	Mathematical Theory of Statistics- II		4.Computational Bioinformatics
	5.Numerical Analysis- I	5.	Numerical Analysis- II		5.Continuum Mechanics
	6.Numerical solutions of Partial differential equations	6.	Viscous Fluid Dynamics-II		6.Modeling and Simulation
	7.Viscous Fluid Dynamics-I	7.	Number Theory-II		
	8.Integral Equations	8.	Astronomy-II		
	9.Number Theory-I	9.	Advanced Topology		
	10. Astronomy-I	10.	Financial Mathematics		
	11. Computer Programming in C & Lab				

Mewar University, Chittorgarh

Scheme for B.Sc.(PCM/PMCS/BCZ/GCM/BZBT/GPM/PMS/PMBT/PCBT)

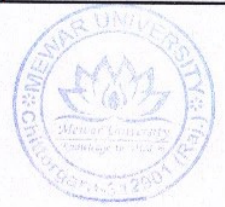
Effective from Year: [illegible] 2017-20

UG-Course: General

B. SC. - I SEMESTER				Contact hours per Week			Credit Hour	Teacher Assessment	Pre-Final (Subjective)	External Examination /Viva-	Total Marks
S.No.	Code (G/H)	COURSE OPTED	COURSE NAME	L	T	P					
1	BSCG-101	Ability Enhancement Compulsory Course-I	English	2			2	10	15	25	50
2	BSCG-102	Core course-I	Mechanics	4			4	15	35	50	100
3	BSCG-103	Core Course-I Practical / Tute	Mechanics Lab			4	2	10	15	25	50
4	BSCG-104	Core Course-I	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons	4			4	15	35	50	100
5	BSCG-105	Core Course-I Practical	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons Lab			4	2	10	15	25	50
6	BSCG-106	Core Course-I	Calculus	5	1	0	6	20	55	75	150
7	BSCG-107	Core Course-I Practical	Discpline - III Practical / Tute								
			Total	**15**	**1**	**8**	**20**	**80**	**170**	**250**	**500**

MEWAR UNIVERSITY Chittorgarh

B. SC. - II SEMESTER											
1	BSCG-201	Ability Enhancement Compulsory Course-II	Environmental Science	2			2	10	15	25	50
2	BSCG-202	Core course-II	ELECTRICITY & MAGNETISM	4			4	15	35	50	100
3	BSCG-203	Core Course-II Practical / Tute	ELECTRICITY & MAGNETISM Lab			4	2	10	15	25	50
4	BSCG-204	Core Course-II	Chemical Energetics, Equilibria & Functional Group Organic Chemistry I	4			4	15	35	50	100
5	BSCG-205	Core Course-II Practical	Chemical Energetics, Equilibria & Functional Group Organic Chemistry I Lab			4	2	10	15	25	50
6	BSCG-206	Core Course-II	Differential Equations	5	1		6	20	55	75	150
7	BSCG-207	Core Course-II Practical	Discpline - III Practical / Tute								
			Total	**15**	**1**	**8**	**20**	**80**	**170**	**250**	**500**
B. SC. - III SEMESTER											
1	BSCG-301	Core course-III	THERMODYNAMICS	4			4	15	35	50	100
2	BSCG-302	Core Course-III Practical / Tute	THERMODYNAMICS LAB			4	2	10	15	25	50
3	BSCG-303	Core Course-III	Conductance, Electrochemistry & Functional Group Organic Chemistry II	4			4	15	35	50	100
4	BSCG-304	Core Course-III Practical	Conductance, Electrochemistry & Functional Group Organic Chemistry II Lab			4	2	10	15	25	50
5	BSCG-305	Core Course-III	Algebra	5	1	0	6	20	55	75	150
6	BSCG-306	Core Course-III Practical	Discpline - III Practical / Tute								



7	BSCG-307	Skill Enhancement Course - 1	Physics Workshop Skills	2			2	10	15	25	50
8	BSCG-308	Skill Enhancement Course - 1	Intellectual Property Rights	2			2	10	15	25	50
9	BSCG-309	Skill Enhancement Course - 1	Boolean Algebra	2	0	0	2	10	15	25	50
			Total	**19**	**1**	**8**	**24**	**100**	**200**	**300**	**600**
B. SC. - IV SEMESTER											
1	BSCG-401	Core course-IV	Waves and Optics	4			4	15	35	50	100
2	BSCG-402	Core Course-IV Practical / Tute	Waves and Optics Lab			4	2	10	15	25	50
3	BSCG-403	Core Course-IV	Transition Metal & Coordination Chemistry, States of Matter and Chemical Kinetics	4			4	15	35	50	100
4	BSCG-404	Core Course-IV Practical	Transition Metal & Coordination Chemistry, States of Matter and Chemical Kinetics Lab			4	2	10	15	25	50
5	BSCG-405	Core Course-IV	Real Analysis	5	1	0	6	20	55	75	150
6	BSCG-406	Core Course-IV Practical	Discpline - III Practical / Tute								
7	BSCG-407	Skill Enhancement Course - 2	Computational Physics Skills	2			2	10	15	25	50
8	BSCG-408	Skill Enhancement Course - 2	Pharmaceutical Chemistry	2			2	10	15	25	50

9	BSCG-409	Skill Enhancement Course - 2	Analytical Geometry	2	0	0	2	10	15	25	50
			Total	**19**	**1**	**8**	**24**	**100**	**200**	**300**	**600**
B. SC. -V SEMESTER											
1	BSCG-501	Core course-V	DIGITAL AND ANALOG CIRCUITS AND INSTRUMENTATION	4			4	15	35	50	100
2	BSCG-502	Core Course-V Practical / Tute	DIGITAL AND ANALOG CIRCUITS AND INSTRUMENTATION LAB			4	2	10	15	25	50
3	BSCG-503	Core Course-V	Analytical Methods in Chemistry	4			4	15	35	50	100
4	BSCG-504	Core Course-V Practical	Analytical Methods in Chemistry lab			4	2	10	15	25	50
5	BSCG-505	Core Course-V	Vector and Integral Calculus	5	1	0	6	20	55	75	150
6	BSCG-506	Core Course-V Practical	Discpline - III Practical / Tute								
7	BSCG-507	Skill Enhancement Course - 3	Electrical circuits and Network Skills	2			2	10	15	25	50
8	BSCG-508	Skill Enhancement Course - 3	Pesticide Chemistry	2			2	10	15	25	50
9	BSCG-509	Skill Enhancement Course - 3	Linear Programming	2	0	0	2	10	15	25	50

			Total	19	1	8	24	100	200	300	600
B. SC. - VI SEMESTER											
1	BSCG-601	Core course-VI	Solid State Physics And Quantum Mechanics	4			4	15	35	50	100
2	BSCG-602	Core Course-VI Practical / Tute	Solid State Physics And Quantum Mechanics Lab			4	2	10	15	25	50
3	BSCG-603	Core Course-VI	Instrumental methods of chemical Analysis	4			4	15	35	50	100
4	BSCG-604	Core Course-VI Practical	Instrumentals methods of chemical Analysis Lab			4	2	10	15	25	50
5	BSCG-605	Core Course-VI	Probability and Statistics	5	1	0	6	20	55	75	150
6	BSCG-606	Core Course-VI Practical	Discpline - III Practical / Tute								
7	BSCG-607	Skill Enhancement Course - 4	Basic Instrumentation Skills	2			2	10	15	25	50
8	BSCG-608	Skill Enhancement Course - 4	Fuel Chemistry	2			2	10	15	25	50
9	BSCG-609	Skill Enhancement Course - 4	Linear Algebra	2	0	0	2	10	15	25	50
			Total	19	1	8	24	100	200	300	600
			G.Total:	106	6	48	136	560	1140	1700	3400

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

Ref. No. MU/RO/2017/ 308-B **20th March, 2017**

OFFICE ORDER

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

The Board of Studies for the Department of Mechanical Engineering is reconstituted as per rule 12 of the statutes of Mewar University, as under:

SN	Name	Designation	Post
1	Prof. (Dr.) R K Paliwal	Professor & Dean, Faculty of Engg& Technology	Chairman
2	Mr. Kapil Nahar	Assistant Professor & HOD	HOD-Convener
3	Dr. Rakesh Bandhari	Professor & Dean Research Sangam University, Bhilwara	External Member
4	Mr. Upeesh Jain	Sr. Engineer, Jindal Saw Limited, Bhilwara	Member from Industry
5	Dr. Rahul Lodha	Associate Professor	Internal Member 1
6	Mr. Dinesh Kumar	Assistant Professor	Internal Member 1
7	Mr. Sunil Kumar Katheria	Assistant Professor	Internal Member 2
8	Mr. Chandersh Singh	Hansa Tube Pvt Ltd, Mohali	Alumni Member

The term of reference for the Board of Studies are as provide in rule 12 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/Vice Chancellor.

The Convener of the meeting is advised to hold meeting of the BOS seeking Convenience of the Chairman. 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 charges as per the norms prescribed by the 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/HoD's (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 MECHANICAL ENGINEERING

DATE: 15.06.2017

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department of Mechanical Engineering meeting held on 15-06-2017 at 11.30 AM.

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

SN	Name	Designation	Post
1	Prof. (Dr.) R K Paliwal	Professor & Dean, Faculty of Engg& Technology	Chairman
2	Mr. Kapil Nahar	Assistant Professor & HOD	HOD-Convener
3	Dr. Rakesh Bandhari	Professor & Dean Research Sangam University, Bhilwara	External Member
4	Mr. Upeesh Jain	Sr. Engineer, Jindal Saw Limited, Bhilwara	Member from Industry
5	Dr. Rahul Lodha	Associate Professor	Internal Member 1
6	Mr. Dinesh Kumar	Assistant Professor	Internal Member 1
7	Mr. Sunil Kumar Katheria	Assistant Professor	Internal Member 2
8	Mr. Chandersh Singh	Hansa Tube Pvt Ltd, Mohali	Alumni Member

At the outset, Mr. Kapil Nahar (Head, Department of Mechanical 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 13-06-2016

Resolution: Minutes of the previous BOS of the Mechanical Engineering Department held on 13-06-2016 were discussed and approved.

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

Resolution: Mr. Kapil Nahar (Head, Mechanical Engineering) presented a departmental activity report mentioning all the activities conducted related to curricular development, research and development, faculty development and Industrial collaboration.

15/06/2017

Agenda 3: Revision of Existing Programmes/ Courses

Resolution: The Committee reviewed the scheme and syllabus of B. Tech (Mechanical Engineering) and M. Tech Programme and gives some suggestions for syllabus revision.

Agenda 4: Introduction of New Programmes/ Course

Resolution:

1. As per suggestions received from the members of the previous BOS committee, four new courses were introduced in the B.Tech Mechanical Engineering for the upcoming session 2017-18 as follows. The detailed syllabus is attached as **Annexure 2.**
    - Finite Element Methods
    - Gas Dynamics
    - Robotics and Automation
    - Renewable Energy Systems
2. As per suggestions received from the members of the previous BOS committee, one new course was introduced in the M. Tech. Manufacturing System Engineering for the upcoming session 2017-18 is as follows. The detailed syllabus is attached as **Annexure 3.**

- Advanced Manufacturing Systems Design

3. As per the recommendation of expert members, it is decided that a new programme M.Tech Thermal started in the upcoming session. The detailed syllabus and scheme are enclosed as **Annexure 4.**

Agenda 5: Any other suggestions by the BOS committee

Resolution: The BOS Committee suggested some value-added courses useful to the student perspective. Alumni members suggested more industry-oriented approach to the curriculum.

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.

15/06/2017

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

Annexure 1: Attendance Sheet

SN	Name	Designation	Post	Signature
1	Prof. (Dr.) R K Paliwal	Professor & Dean, Faculty of Engg& Technology	Chairman	
2	Mr. Kapil Nahar	Assistant Professor & HOD	HOD-Convener	15/06/2017
3	Dr. Rakesh Bandhari	Professor Mechanical Engineering, Sangam University, Bhilwara	External Member	15/6/2017
4	Mr. Upeesh Jain	Sr. Engineer, Jindal Saw Limited, Bhilwara	Member from Industry	
5	Dr. Rahul Lodha	Associate Professor	Internal Member 1	
6	Mr. Dinesh Kumar	Assistant Professor	Internal Member 1	
7	Mr. Sunil Kumar Katheria	Assistant Professor	Internal Member 2	15/06/17
8	Mr. Chandersh Singh	Production Engineer, Hansa Tube Pvt Ltd, Mohali	Alumni Member	

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

Robotics and Automation

Unit 1: Introduction to Robotics and Automation
Understanding the basics of robotics and automation, including the history, components, and types of robots.
Exploring the role of robotics and automation in various industries, such as manufacturing, healthcare, and space exploration.
Discussing the benefits, challenges, and ethical considerations associated with robotics and automation technologies.

Unit 2: Robot Kinematics and Dynamics
Kinematics of robotic systems: Analyzing the motion and positioning of robot manipulators, including forward and inverse kinematics.
Dynamics of robotic systems: Understanding the forces and torques acting on robot manipulators and their impact on robot performance and stability.
Robot modeling and simulation: Utilizing software tools to simulate and analyze the kinematics and dynamics of robot systems.

Unit 3: Robotic Sensors and Actuators
Robotic sensors: Exploring various types of sensors used in robotics, such as proximity sensors, vision systems, force/torque sensors, and inertial sensors.
Robotic actuators: Understanding the different types of actuators, including electric motors, hydraulic/pneumatic actuators, and shape memory alloys.
Sensor fusion: Integrating multiple sensors to enhance robot perception and enable more robust and intelligent decision-making.

Unit 4: Robot Programming and Control Systems
Robot programming languages: Learning programming languages and frameworks used for robot control, such as ROS (Robot Operating System) and PLC (Programmable Logic Controllers).
Robot control architectures: Understanding different control architectures, including hierarchical control, behavior-based control, and hybrid control.
Motion planning and trajectory generation: Developing algorithms and techniques for robot path planning, collision avoidance, and trajectory generation.

Unit 5: Applications of Robotics in Manufacturing, Healthcare, and Exploration
Industrial robotics: Exploring the use of robots in manufacturing processes, including assembly, welding, material handling, and quality control.
Medical robotics: Understanding the applications of robots in healthcare, such as surgical robots, rehabilitation robots, and assistive devices.
Robotic exploration: Discussing the role of robots in space exploration, underwater exploration, and hazardous environments where human presence is limited or

Finite Element Methods (FEM)

Unit 1: Introduction to Finite Element Methods

Understanding the basic principles and concepts of Finite Element Methods, including discretization, interpolation, and variational principles.

Exploring the historical development of FEM and its applications in various engineering and scientific fields.

Discussing the advantages and limitations of FEM compared to other numerical methods.

Unit 2: Finite Element Analysis Process

Problem formulation: Defining the physical problem, including boundary conditions, material properties, and geometry.

Mesh generation: Dividing the domain into finite elements and establishing node connectivity.

Discretization of governing equations: Formulating the governing equations within each finite element using suitable approximation methods.

Solution techniques: Solving the system of equations using numerical methods such as matrix inversion, iterative methods, or direct solution techniques.

Post-processing: Analyzing and interpreting the results obtained from the solution, including visualization and validation.

Unit 3: Finite Element Formulations

Structural analysis: Applying FEM to solve problems in solid mechanics, including stress analysis, deformation, and vibration analysis.

Heat transfer analysis: Utilizing FEM for analyzing thermal behavior and heat transfer processes in solids, fluids, and coupled systems.

Fluid dynamics analysis: Extending FEM to solve problems in fluid flow, including steady-state and transient flows, laminar and turbulent flows, and compressible and incompressible flows.

Electromagnetics analysis: Exploring FEM applications in electromagnetics, such as electromagnetic field analysis, wave propagation, and antenna design.

Unit 4: Advanced Topics in Finite Element Methods

Error estimation and adaptive refinement: Evaluating the accuracy of the finite element solution and refining the mesh to improve accuracy.

Transient analysis: Applying FEM to solve time-dependent problems, including dynamic analysis, transient heat transfer, and fluid-structure interaction.

Nonlinear analysis: Extending FEM to solve problems with nonlinear material behavior, large deformations, and contact.

Optimization and sensitivity analysis: Introducing optimization techniques and sensitivity analysis within the context of FEM to improve designs and performance.

Unit 5: Finite Element Applications in Engineering

Structural engineering: Exploring the application of FEM in the analysis and design of structures, such as buildings, bridges, and mechanical components.

Heat transfer and fluid dynamics: Discussing the use of FEM in analyzing heat exchangers, fluid flow in pipes, and other thermal-fluid systems.

Multiphysics simulations: Investigating the coupling of multiple physical phenomena, such as fluid-structure interaction, thermal-electrical coupling, and acoustics.

Industrial applications: Examining real-world industrial applications of FEM in various sectors, including automotive, aerospace, civil engineering, and manufacturing processes.

Gas Dynamics

Unit 1: Introduction to Gas Dynamics

Understanding the basics of gas dynamics, including the fundamental principles, properties of gases, and the behavior of gases under different conditions.

Exploring the historical development of gas dynamics and its significance in various fields, such as aerospace engineering, combustion, and fluid dynamics.

Discussing the applications of gas dynamics in industries like power generation, propulsion systems, and environmental studies.

Unit 2: Gas Flow Equations and Conservation Laws

Gas flow equations: Analyzing the governing equations of gas dynamics, including the continuity equation, conservation of momentum, and energy equation.

Studying the one-dimensional flow of compressible fluids and its application to various flow regimes, such as subsonic, supersonic, and hypersonic flows.

Understanding the concept of shock waves and their formation in high-speed gas flows.

Unit 3: Compressible Flow and Nozzles

Compressible flow: Investigating the behavior of gases at high velocities and densities, and studying the effects of compressibility on flow properties.

Examining the isentropic flow process and its relevance to nozzles, diffusers, and compressors.

Analyzing the performance and characteristics of convergent-divergent nozzles used in propulsion systems and other applications.

Unit 4: Gas Dynamics of Propulsion Systems

Rocket propulsion: Exploring the principles of rocket propulsion and the role of gas dynamics in rocket engine design and performance.

Gas turbine engines: Understanding the gas dynamics of jet engines and gas turbines, including the analysis of inlet, compressor, combustion chamber, turbine, and exhaust nozzle.

Discussing the optimization of propulsion systems through the application of gas dynamics principles and performance analysis.

Unit 5: Gas Dynamics in Environmental Studies and Energy Systems

Environmental applications: Investigating the role of gas dynamics in environmental studies, such as air pollution dispersion modeling and atmospheric dynamics.

Energy systems: Exploring the utilization of gas dynamics principles in energy conversion systems, including gas pipelines, wind turbines, and internal combustion engines.

Discussing the challenges and considerations in the design and operation of energy systems from a gas dynamics perspective, including efficiency, emissions, and safety.

Renewable Energy Sources

Unit 1: Introduction to Renewable Energy Sources
Solar energy: Harnessing energy from the sun using photovoltaic panels or solar thermal systems.
Wind energy: Utilizing wind turbines to convert wind power into electricity.
Hydro energy: Harnessing the power of flowing water in hydroelectric systems.
Geothermal energy: Tapping into the Earth's heat for electricity generation or heating.

Unit 2: Energy Conversion Technologies
Photovoltaics: Conversion of sunlight into electricity using solar cells.
Wind turbines: Converting kinetic energy from wind into electrical energy.
Hydroelectric systems: Converting the potential energy of water into electricity.

Unit 3: Integration of Renewable Energy Systems into the Power Grid
Grid integration: Incorporating renewable energy sources into existing power grids.
Power grid balancing: Managing the variability and intermittency of renewable energy sources.
Smart grid technologies: Enhancing grid flexibility and efficiency through advanced monitoring and control systems.

Unit 4: Energy Storage Technologies
Battery storage: Storing electricity in batteries for later use.
Pumped hydro storage: Utilizing surplus electricity to pump water uphill for later release through turbines.
Thermal storage: Capturing and storing excess heat energy for later use.

Unit 5: Environmental and Economic Considerations of Renewable Energy
Environmental impact: Assessing the environmental benefits and challenges associated with renewable energy.
Economic viability: Evaluating the costs and benefits of renewable energy systems.
Policy and incentives: Analyzing government policies and incentives that promote renewable energy adoption.

Advanced Manufacturing Systems Design

Unit 1:

Design for Manufacturing and Assembly (DFMA)

Principles of Design for Manufacturing and Assembly (DFMA) to optimize product design for efficient and cost-effective manufacturing and assembly processes.

Analyzing product architectures, material selection, and component standardization to simplify manufacturing and assembly operations.

Applying DFMA tools and methodologies to reduce production costs, improve quality, and enhance product performance.

Unit 2:

Concurrent Engineering and Collaborative Design

Understanding concurrent engineering principles and methodologies for parallelizing product development and manufacturing processes.

Collaborative design techniques and tools to enable effective communication and collaboration among cross-functional teams.

Integration of manufacturing considerations early in the design phase to minimize rework, reduce lead time, and improve product quality.

Unit 3:

Design for Sustainability and Life Cycle Assessment

Incorporating sustainability principles into product design and development processes to minimize environmental impacts. Conducting life cycle assessments (LCA) to evaluate the environmental, social, and economic aspects of a product throughout its life cycle.

Implementing strategies for eco-design, waste reduction, energy efficiency, and responsible sourcing in manufacturing systems.

Unit 4:

Product Lifecycle Management (PLM) Systems

Understanding the role of Product Lifecycle Management (PLM) systems in managing product information and processes across the entire product lifecycle.

Utilizing PLM tools and software for product data management, change management, and collaboration among different stakeholders.

Integrating PLM systems with other enterprise systems to streamline design, manufacturing, and supply chain operations.

Unit 5:

Digital Twin and Virtual Manufacturing

Concepts and applications of digital twin technology in advanced manufacturing systems design and optimization.

Creating virtual models and simulations of manufacturing systems to analyze performance, optimize processes, and improve efficiency.

Integration of digital twin with real-time data and IoT technologies for predictive maintenance, process optimization, and continuous improvement.

MEWAR UNIVERSITY CHITTORGARH (RAJASTHAN)
Scheme of Two – Year M Tech: Thermal Engineering

First 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	Teacher's Evaluation		
TE-411	Applied Mathematics	4	-	4	30	10	60	100
TE -412	Computational Methods in Fluid flow and Heat transfer	4	-	4	30	10	60	100
TE -413	Analysis of Thermal Power Cycles	4	-	4	30	10	60	100
TE -414	Solar Energy	4	-	4	30	10	60	100
TE - 511/512/513	Elective – I	4	-	4	30	10	60	100
TE -415	Computational Fluid Dynamics Lab		2	2	10	10	30	50
	Total Semester Credits=			22			**Total Semester Marks=**	550

Second 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	Teacher's Evaluation		
TE -421	Advanced Fluid Mechanics	4	-	4	30	10	60	100
TE -422	I C Engine Theory and Performance	4	-	4	30	10	60	100
TE -423	Turbo machines	4	-	4	30	10	60	100
TE -424	Non Conventional Energy Systems	4	-	4	30	10	60	100
TE - 521/522/523	Elective – II	4	-	4	30	10	60	100
TE -425	Thermal Systems Lab		2	2	10	10	30	50
	Total Semester Credits=			22			**Total Semester Marks=**	550

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

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	Teacher's Evaluation		
TE -431	Air Conditioning Systems	4	-	4	30	10	60	100
TE -432	Design of Thermal Systems	4	-	4	30	10	60	100
TE -433	Seminar		6	6	-	-	150	150
TE -434	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	Teacher's Evaluation		
TE -441	Dissertation	-	16	16	50	-	350	400
Total Semester Credits=				**16**			**Total Semester Marks=**	**400**

LIST OF ELECTIVES

ELECTIVE – I

1 TE -511- Materials Management

2. TE -512- Gas Dynamics

3. TE -513- Surface Treatment And Finishing

ELECTIVE – II

1. TE -521- Advanced Refrigeration Engineering

2. TE -522- Hydel Power and Wind Energy

3. TE -523 – Thermal and Nuclear Power Plants

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/2017/678-A **22nd May 2017**

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 Rule12 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) R. K. Paliwal, Dean, Faculty of Science & Technology - Chairman
2) Prof. (Dr.) S.C. Ameta, Pacific University, Udaipur - External Member
3) Mr.Mohammad Ashid, Assistant Professor - Internal Member
4) Ms. Sunita Sharma, Assistant Professor - Internal Member
5) Mr. Anil Jaiswal - Alumni
6) Dr. Ajit Joshi, Head & Assistant Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 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 second week of June 2017. 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: 13.06.2017

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department of Chemistry meeting held on 13-06-2017at 11.30 AM.

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

1) Prof. (Dr.) R. K. Paliwal, Dean, Faculty of Science & Technology - Chairman
2) Prof. (Dr.) S.C. Ameta, Pacific University, Udaipur - External Member
3) Mr. Mohammad Ashid, Assistant Professor - Internal Member
4) Ms. Sunita Sharma, Assistant Professor - Internal Member
5) Mr. Anil Jaiswal - Alumni
6) Dr. Ajit Joshi, Head & Assistant Professor - Convener

At the outset, Dr. Ajit Joshi, 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 24-05-2016

Resolution: Minutes of the previous BOS of the Chemistry Department held on 24-05-2016 were discussed and approved.

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

Resolution: Dr. Ajit Joshi (Head, Department of Chemistry) presented a departmental activity report mentioning all the activities conducted related to curricular development and faculty development.

Agenda 3: Revision of Existing Programmes/ Courses

Resolution: No revision in the running syllabus for the upcoming session.

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 CHEMISTRY

DATE: 13.06.2017

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Prof. (Dr.) R. K. Paliwal, Dean, Faculty of Science & Technology	Chairman	13/06/2017
2	Prof. (Dr.) S.C. Ameta, Pacific University, Udaipur	External Member	S.C. Ameta
3	Mr. Mohammad Ashid, Assistant Professor	Internal Member	13/6/2017
4	Ms. Sunita Sharma, Assistant Professor	Internal Member	13/6/17
5	Mr. Anil Jaiswal	Alumni	
6	Dr. Ajit Joshi, Head & Assistant Professor	Convener	13/6/17

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

Ref. No.: MU/RO/2017/628-A **3rd June 2017**

OFFICE ORDER

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

The Board of Studies for the Department of Agriculture is reconstituted as per Rule 12 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) R C Tiwari, Dean, Faculty of Agri. & Vet. Sc. - Chairman
2) Prof. (Dr.) Qumrul Ghani Qureshi, Professor, DFRS, MPUAT, Bhilwara - External Member
3) Mr. Vijay Kumar Sharma, Coronation Infrastructure Pvt. Ltd. - External Member
4) Mr. Brijesh Kumar Meena, Assistant Professor, Agriculture - Internal Member
5) Mr. Gautam Singh Dhaked, Assistant Professor, Agriculture - Internal Member
6) Dr.Neelu Jain, Associate Professor, Agriculture - Internal Member
7) Dr. Neeraj Phogat, Assistant Professor, Agriculture - Internal Member
8) Mr. Akshay Chittora, Assistant Professor, Agriculture - Internal Member
9) Dr. R C Dhaker, Head, Agriculture. - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 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 first week of June 2017. 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 the Mewar University.

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.

Registrar
Mewar University
Gangrar, (Chittorgarh)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF AGRICULTURE

DATE: 07.06.2017

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department of Agriculture meeting held on 07-06-2017 at 11.30 AM. The following members were present: **(Annexure 1)**

1) Prof. (Dr.) R C Tiwari, Dean, Faculty of Agri. & Vet. Sc. - Chairman
2) Prof. (Dr.) Qumrul Ghani Qureshi, Professor, DFRS, MPUAT, Bhilwara - External Member
3) Mr. Vijay Kumar Sharma, Coronation Infrastructure Pvt. Ltd. - External Member
4) Mr. Brijesh Kumar Meena, Assistant Professor, Agriculture - Internal Member
5) Mr. Gautam Singh Dhaked, Assistant Professor, Agriculture - Internal Member
6) Dr.Neelu Jain, Associate Professor, Agriculture - Internal Member
7) Dr. Neeraj Phogat, Assistant Professor, Agriculture. - Internal Member
8) Mr. Akshay Chittora, Assistant Professor, Agriculture. - Internal Member
9) Dr. R C Dhaker, Head, Agriculture. - Convener

At the outset, Dr. R C Dhaker, Head of the Department of Agriculture, 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 13-06-2016

Resolution: Minutes of the previous BOS of the Agriculture Department held on 13-06-2016 were discussed and approved.

Agenda: 2 Confirm the minutes to implement the Vth Deans committee recommended by the ICAR from this academic session i.e. 2017-18

Resolution: Confirm the minutes to implement the Vth Deans committee recommended by the ICAR, and Department of Agriculture has been implemented from the session i.e. 2017-18 for B.Sc. (Hons.) Agriculture **(Confirmed)**

Agenda 3: 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 AGRICULTURE

DATE: 07.06.2017

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Prof. (Dr.) R C Tiwari, Dean, Faculty of Agriculture & Vet. Sc.	Chairman	
2	Prof. (Dr.) Qumrul Ghani Qureshi ,Professor,DFRS,MPUAT,Bhilwara	External Member	
	Mr. Vijay Kumar Sharma, Coronation Infrastructure Pvt. Ltd.	External Member	
4	Dr. Neeraj Phogat, Assistant Professor	Internal Member	
5	Mr. Brijesh Kumar Meena, Assistant Professor,	Internal Member	
6	Mr. Gautam Singh Dhaked, Assistant Professor	Internal Member	
7	Dr.Neelu Jain, Associate Professor, Agriculture	Internal Member	
8	Mr. Akshay Chittora	Internal Member	
9	Dr. R C Dhaker, Head, Agriculture.	Convener	
		Special Invitee (if any)	

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

Ref. No.: MU/RO/2017/561-A **17th May 2017**

OFFICE ORDER

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

The Board of Studies for the Department of Computer Applications is reconstituted as per Rule 12 of the Statutes of Mewar University, as under:

1. Prof. (Dr.) R. K Paliwal, Dean, Faculty of Computer Science & System Studies - Chairman
2. Dr. SeemaBawa, Professor Dept CSE, Thapar University, Patiala - External Member
3. Mr. Anuj Kumar, Technical Leader, North Shore Tech., NOIDA - External Member
4. Mr. RavindraVerma, Assistant Professor - Internal Member
5. Mr. M. Rashid, Assistant Professor - Internal Member
6. Ms. Suman Kumari Teli, School in Sawa - Alumni
7. Mr. Ajay Kumar, HOD & Assistant Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 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 2017. 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

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: 17.06.2017

Minutes of Meeting of Board of Studies

The Board of Studies Meeting of the Department of Computer Application was held on 17th June 2017 in Room No. 135 at 11:00 am onwards to approve the new/changes in curriculum and Syllabus revision for session 2017-18.

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

1. Prof. (Dr.) R. K. Paliwal, Dean, Faculty of Computer Science & System Studies - Chairman
2. Dr. Seema Bawa, Professor, Dept. CSE, Thapar University, Patiala - External Member
3. Mr. Anuj Kumar, Technical Leader, North Shore Tech., NOIDA - External Member
4. Mr. RavindraVerma, Assistant Professor - Internal Member
5. Mr. M. Rashid, Assistant Professor - Internal Member
6. Ms. Suman Kumari Teli, School in Sawa - Alumni
7. Mr. Ajay Kumar, HOD & Assistant Professor - Convener

At the outset, Mr. Ajay Kumar, 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 13-06-2016

Resolution: Minutes of the previous BOS of the Computer Application Department held on 13-06-2016 were discussed and approved.

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

Resolution: Mr. Ajay Kumar (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: Reviewof Existing Programmes/ Courses

Resolution: The Committee reviewed and approved the scheme and syllabus of courses for BCA, BCA-MCA and MCA for the upcoming session from 2017-18.**(Annexure 2)**

17/6/17

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

Agenda 4: Introduction of New Programmes/Course

Resolution:

1. Suggestionreceived from previous BOS committee members a new programme PGDCA will be started in the upcoming session 2017-18. A listing of practical and marks distribution (scheme of practical) should be done and appended with the syllabus.**(Annexure 3)**

Agenda 5: 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.

17/6/17

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF COMPUTER APPLICATIONS

DATE: 17.06.2017

Annexure 1: Attendance Sheet

S.NO.	Name &Designation	Designation in BOS	Signature
1	Prof. & (Dr.) R. K Paliwal, Dean, Computer Science & System Studies	Chairman	राधा कृष्ण 17/06/17
2	Dr. Seema Bawa, Professor Department of CSE, Thapar University, Patiala	External Member	
3	Mr. Anuj Kumar, Technical Leader, North Shore Tech., NOIDA	External Member	Anuj 17/06/17
4	Mr. Ravindra Verma, Assistant Professor	Internal Member	17/06/17
5	Mr. M. Rashid, Assistant Professor	Internal Member	
6	Ms. Suman Kumari Teli, School in Sawa	Alumni	Suman 17/06/17
7	Mr. Ajay Kumar, HOD & Assistant Professor	Convener	17-06-2017
		Special Invitee (if any)	

[1] Program Details

Department Name	Department of Computer Applications
Program Name	Post Graduate Diploma in Computer Applications (PGDCA)
Program Level	PG Diploma
Specialization	Computer Applications
Duration	1 Year
Total No. of Semester	2
Total Credit	24+26=50
Total Marks	1250
Mode	Regular

[2] Eligibility Criteria

BCA/B. Sc. /BBA/B. Tech/B. Com/BA (math) qualified with minimum 50% marks are eligible to take admission in PGDCA.

Or

BA (Arts) + DOEACC A level qualified candidates are also eligible.

Or

10+2 (PCM) + BA (Arts) are also eligible.

[3] Methodologies

- Classroom lectures
- Presentation (P)/Chart-model (C)/Assignments (A) two ways teaching
- Tutorial/Discussion/Quiz Session
- Practical classes
- Examinations
- Project work

[4] Program Scopes

The basic aim this program to gain competencies in various areas of Computer Applications. The aim of the program is also to improve programming abilities in a modern programming language, such as Java, .Net, C++ etc.. The course builds on basic programming knowledge and practice and prepares the student to participate in larger programming projects. The students: -

- are familiar with Computer based accounting and management of medium sized enterprises.

- are familiar with state-of-the-art technologies.
- are familiar with computer system and its applications.
- understand strategies and models of internationalization and globalization.
- are eligible for various competitive examinations in government sectors like Bank PO, IT Assistant, IT Officer, Technical Assistant, Accountant, FCI etc.
- know about the basic concept of software engineering and project management.
- are able to handle modern computer system and have gained experience in IT fields.
- acquire solid knowledge about threats to security and cyber crime in networked and internet environments.

[5] Silent Features

- Totally realistic and result oriented program
- Exposure to the tools and techniques at the industrial level.
- Hands out practical in respective laboratory.

[6] Semester Details

Semester I							
Course Code	Course Name	L	T	P	Credit	Marks
PGD-101	Operating System	3	1	-	4	100
PGD-102	Computer Fundamentals and Information System	3	1	-	4	100
PGD-103	Introduction to C Programming	3	1	-	4	100
PGD-104	Mathematical Foundation for Computer Science	3	1	-	4	100
PGD-105	Digital Electronics and its Applications	3	1	-	4	100
PGD-106	Lab- Computer Fundamentals and Information System	-	-	4	2	50
PGD-107	Lab - Introduction to C Programming	-	-	4	2	50
Total					24	600

Semester II						
Course Code	Course Name	L	T	P	Credit	Marks
PGD-201	Database Management System	3	1	-	4	100
PGD-202	Information System Analysis & Design	3	1	-	4	100
PGD-203	Data Structure Algorithms	3	1	-	4	100
PGD-204	Management and Accounting	3	1	-	4	100
PGD-205	Lab- Database Management System	-	-	4	2	50
PGD-206	Lab- Data Structure Algorithms	-	-	4	2	50
PGD-207	Project	-	-	6	6	150
Total					26	650

[7] Examination Scheme

Semester-I

Sr. No.	Course Code	Course Title	Contact Hours Per Week			Subject Credit	TA	End Term Part 1	End Term Part 2/ Viva-Voce	Internal Practical	External Practical	Total Marks
			L	T	P							
1	PGD-101	Operating System	3	1	-	4	15	35	50	-	-	100
2	PGD-102	Computer Fundamentals and Information System	3	1	-	4	15	35	50	-	-	100
3	PGD-103	Introduction to C Programming	3	1	-	4	15	35	50	-	-	100
4	PGD-104	Mathematical Foundation for Computer Science	3	1	-	4	15	35	50	-	-	100
5	PGD-105	Digital Electronics and its Applications	3	1	-	4	15	35	50	-	-	100
6	PGD-106	Lab-Computer Fundamentals and Information System	-	-	4	2	-	-	-	20	30	50
7	PGD-107	Lab-Introduction to C Programming	-	-	4	2	-	-	-	20	30	50
		TOTAL				24						600

Semester-II

Sr. No.	Course Code	Course Title	Contact Hours Per Week			Subject Credit	TA	End Term Part 1	End Term Part 2/ Viva-Voce	Internal Practical	External Practical	Total Marks
			L	T	P							
1	PGD-201	Database Management System	3	1	-	4	15	35	50	-	-	100
2	PGD-202	Information System Analysis & Design	3	1	-	4	15	35	50	-	-	100
3	PGD-203	Data Structure Algorithms	3	1	2	4	15	35	50	-	-	100
4	PGD-204	Accounting and Financial management	3	1	2	4	15	35	50	-	-	100
5	PGD-205	Lab- Database Management System	-	-	4	2	-	-	-	20	30	50
6	PGD-206	Lab-Data Structure Algorithms	-	-	4	2	-	-	-	20	30	50
7	PGD-207	Project	-	-	6	6	-	-	-	50	100	150
		TOTAL				26						650

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/2017/ 263-A

06th March 2017

OFFICE ORDER

Sub.: Reconstitution of Board of Studies for the Department of Chemical Engineering

The Board of Studies for the Department of Chemical Engineering is reconstituted as per Rule 12 of the Statutes of Mewar University, as under:

1) Prof. R. K. Paliwal, Professor & Dean - Chairman
2) Prof. (Dr.) Mr. Mahesh Kumar Singla- Senior Engineer, Hindustan Zinc. - External Member
3) Prof. (Dr.) Pankaj Kumar Pandey- Amity University Jaipur - External Member
4) Mr. Dinesh Kumar, Assistant Professor - Internal Member
5) Ms. Shalinee Gupta, Assistant Professor - Internal Member
6) Ms. Vandana Kumari, Head & Assistant Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 of 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 first week of June 2017. 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

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 CHEMICAL ENGINEERING

DATE: 06.06.2017

Minutes of Meeting of Board of Studies

The Board of Studies Meeting of the Department of Chemical Engineering, Faculty of Engineering and Technology was held on 06th June 2017 in Room No. 135 at 11:00 am onwards to approve the new/changes in curriculum and Syllabus revision for session 2017-18.

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

1) Prof. R. K. Paliwal, Professor & Dean - Chairman
2) Prof. (Dr.) Mr. Mahesh Kumar Singla- Senior Engineer, Hindustan Zinc. - External Member
3) Prof. (Dr.) Pankaj Kumar Pandey- Amity University Jaipur - External Member
4) Mr. Dinesh Kumar, Assistant Professor - Internal Member
5) Ms. Shalinee Gupta, Assistant Professor - Internal Member
6) Ms. Vandana Kumari, Head & Assistant Professor - Convener

At the outset, Ms. Vandana Kumari (Head, Chemical 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 13-06-2016

Resolution: Minutes of the previous BOS of the Chemical Engineering Department held on 13-06-2016 were discussed and approved.

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

Resolution: Ms. Vandana Kumari presented departmental activities couducted related to curricular development, research development, faculty development and Industrial collaboration were presented.

Agenda 3: Review of Existing Programmes/Courses

Resolution: The Committee reviewed and approved the scheme and syllabus of courses for UG students for the upcoming session from 2017-18. **(Annexure 2)**

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

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 CHEMICAL ENGINEERING

DATE: 06.06.2017

Annexure 1: Attendance Sheet

S.NO.	Name& Designation	Designation in BOS	Signature
1	Prof. R. K. Paliwal, Professor & Dean	Chairman	
2	Prof. (Dr.) Mr. Mahesh Kumar Singla	External Member	6/6/17
3	Prof. (Dr.) Pankaj Kumar Pandey	External Member	Pankaj
4	Mr. Dinesh Kumar, Assistant Professor,	Internal Member	06.06.2017
5	Ms. Shalinee Gupta, Assistant Professor,	Internal Member	
6	Ms. Vandana Kumari, Head & Assistant Professor	Convener	

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/2017/ 521-B **8th May 2017**

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 12 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) R.K. Paliwal, Dean of Engineering - Chairman
2) Prof. (Dr.) R.S. Meena - External Member
3) Prof. (Dr.) Mithilesh Kr, Principal, GEC - External Member
4) Mr. Gaurav Sharma, Assistant Professor - Internal Member
5) Mr. K. Srinivasarao, Assistant Professor - Internal Member
6) Ms. Shilpa Jangid, Head & Assistant Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 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 the 15th June 2017. 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

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 ELECTRONICS AND COMMUNICATION ENGINEERING

DATE: 15/06/2017

Minutes of Meeting of Board of Studies

Minutes of the BOS of the Department ofElectronics and Communication Engineering meeting held on 15-06-2017 at 11.30 AM.

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

1) Prof. (Dr.) R.K. Paliwal, Dean of Engineering - Chairman
2) Prof. (Dr.) R.S. Meena - External Member
3) Prof. (Dr.) Mithilesh Kr, Principal, GEC - External Member
4) Mr. Gaurav Sharma, Assistant Professor - Internal Member
5) Mr. K. Srinivasarao, Assistant Professor - Internal Member
6) Ms. Shilpa Jangid, Head & Assistant Professor - Convener

At the outset, Ms. Shilpa Jangid (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.

Scheme and Syllabus of all the courses which includes B.Tech and M.Tech.(DC) was reviewed by external experts and members of the BOS. Some suggestions have been given by the experts in different areas of the course curriculum which are as follows:

Agenda 1: To approve minutes of the previous BOS. held on 13-06-2016

Resolution: Minutes of the previous BOS of the Electronics & Communication Engineering department held on 13-06-2016 were discussed and approved.

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

Resolution: Ms. ShilpaJangid, (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) programme and approved the scheme and syllabus for the session 2017-18.**(Annexure 2)**

Agenda 4: Introduction of New Programme/Course

Resolution:

1. The BOS Committee approved the syllabus of two new courses in M. Tech. (Digital Communication)for PG students from session 2017-18are mentioned below. **(Annexure 3)**

15/6/2017

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

- Signal Theory
- Advanced Optical Communication

2. The BOS Committee members also approved the syllabus of four new courses in B. Tech. (Electronics & Communication Engineering) for UG studentsfrom session 2017-18are mentioned below. **(Annexure 4)**

- Semiconductor Devices and Circuits
- Network and transmission lines
- Principles of communication
- Waveguide, Antennas and wave propagation

Agenda 5: Any other suggestions by BOS Committee

Resolution: Suggestion regarding subject scheme and syllabus-

a. In each subject of the entire course, objectives and outcomes should be mentioned at the beginning of the paper.
b. According to the lecture plan,the total number of lectures should be fixed according to the scheme.
c. In the particular unit of every subject how many lectures are required should be mentioned in the scheme.
d. The procedure of mark distribution should be disclosed in the scheme.
e. In the syllabus, books for every subject should be mentioned in two parts viz.
   - Text Books
   - Reference Books
f. More electives subjects should be added from 5thSem onwards according to recent technologies and advancements like Robotics Engineering, MEMS, Microcontrollers, Nano-electronics, etc.
g. The syllabus should be reviewed by researchers, external experts, industry persons, guest faculties, and students and also by the alumni of the university from time to time.

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 Chittorgarh-312901 (Raj.)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

DATE: 15/06/2017

Annexure 1: Attendance Sheet

S.NO.	Name& Designation	Designation in BOS	Signature
1	Prof. (Dr.)R.K. Paliwal, Dean Engg.	Chairman	RK 15/6/2017
2	Prof. (Dr.) R.S. Meena, RTU	External Member	Meena 15/6/2017
3	Prof. (Dr.) Mithilesh Kumar, Principal, GEC	External Member	15/6/2017
4	Mr. K. Srinivasarao, Assistant Professor	Internal Member	SN 15/6/2017
5	Mr. Gaurav Sharma, Assistant Professor	Internal Member	Gaurav 15/6/2017
6	Ms. ShilpaJangid, Head & Assistant Professor	Convener	Shilpa 15/6/2017

SIGNAL THEORY

Representation of deterministic signals: Orthogonal representation of signals. Dimensionality of signal spaces. Construction of orthogonal basis functions.

Random Processes: Definition and classification, stochastic integrals, Fourier transforms of random processes, stationary and non-stationary processes, correlation functions. Ergodicity, power spectral density, transformations of random processes by linear systems.

Representation of random processes (via sampling, K-L expansion and narrow band representations), special random processes :white Gaussian noise, Wiener-Levy process, Poisson process, shot-noise process, Markov process.

Optimum Filtering: Matched filters for deterministic signals in white and colored Gaussian noise. Wiener filters for random signals in white and colored Gaussian noise.

BOOKS

- Principles Of Linear Systems And Signals,2e (Intl. Version),Lathi ,2nd,Oxford
- Signal & Systems 3e,Chen 3rd,Oxford
- Fundamentals Of Signals And Systems,M.J. Roberts ,Wiley
- Signals And Systems,P Rao,Tmh

ADVANCED OPTICAL COMMUNICATION

Optical fibers: review of fundamentals, Signal distortion and attenuation, Intermodal and intramodal dispersion, dispersion flattened and dispersion compensated fibers, Profile dispersion, study of PMD.

Laser diode and photodiode, Photodetector noise analysis, Analog and Digital communication link design.

WDM, DWDM, optical couplers, Mach-Zehnder interferometer multiplexer, optical add/drop multiplexers, isolators, circulators, optical filters, tunable sources and tunable filters, arrayed waveguide grating, diffraction grating, optical amplifiers, optical integrated circuits .Characterization of optical fibers, OTDR

SONET: frame format, overhead channels, payload pointer, Virtual tributaries, multiplexing hierarchy.

SDH: Standards ,frame structure and features. Optical switching,WDM networks,Classification of optical sensors.Intensity modulated, phase modulated and spectrally modulated sensors.

BOOKS

- Optical Fibre And Laser : Principles And Applications,De, Anuradha, New Age
- Opto Electronics And Fibre Optics Communication,Sarkar, D.C,
- Optical Fiber Communications: Principles And Practice,G P Agrawal, Govind P Agrawal, Wiley
- Optical Communication System,Johan Gowar, Phi
- Fiber Optics And Optoelectronics,Khare, Oxford

15/6/2019

1. Semiconductor devices and circuits (Syllabus)

UNIT-I	Introduction:Elementalandcompoundsemiconductors,Energybandmodel,Electronandholeconcentrationsinsemiconductors(IntrinsicandExtrinsic),Temperaturedependenceofcarrierconcentrations. Carrier Transport in Semiconductors, Drift and Diffusion currents.Excess carriers insemiconductors– Generation and Recombination. Basic equations for semiconductordevice operation
UNIT-II	P–N Junctions: Abrupt and linearly graded junctions, V-I characteristic of an idealdiode, A real diode, C-V characteristic of a reverse biased p-n junction,Electricalbreakdown of a p-n junction in reversebias, Zener and Avalanche Breakdown.Diode circuit model. p-n junction applications, Half Wave, Full Wave and Bridgerectifier,Varactor,Voltageregulator,Demodulator,Solarcells,Diodeasaswitch.
UNIT-III	BipolarJunctionTransistors:Structure,Principleofoperation,Idealandrealtransistor, I-V Characteristics, Small signal equivalent circuits, High frequency andSwitching Transistors. Power transistors.BJT as an amplifier, Biasing, Small Signalanalysis of class A amplifier. Frequency response of RC coupled amplifier .BJT as aswitch.
UNIT-IV	JFET:BasicStructure,OperatingPrinciple,I-Vcharacteristics,JFETAmplifier,Biasing, Analysis of JFET Amplifier.MOSFET:Basic Structure, Enhancement &Depletion type MOSFET, I-V Characteristics, C-V Characteristics of MOS, Capacitor,Threshold Voltage, MOSFET as aSwitch, MOSFET Parameters. MOSFET Amplifiers.Thyristor,GTO,and IGBT.SCR:Constructionandcharacteristics

2. Network and transmission lines (Syllabus)

UNIT-I	NetworkParameters:Opencircuitimpedance(Z)parameters,Shortcircuitadmittance(Y)parameters,Transmission(ABCD)parametersandinversetransmission parameters, Hybrid (h) parameters and inverse hybrid parameters,Conversionbetweenparameters-interconnectionoftwo-portnetworks.
UNIT-II	Time and Frequency Domain Analysis: Network elements, Network function, Drivingpoint and transfer impedances and their properties, Poles and zeros of networkfunction,Timedomainresponseforpole-zeroplot.Immittance,LociofRLCnetworks, Frequency response of RLC networks, Frequency response from pole-zeroplots. Synthesis of one port networks, Synthesis of RL, RC, LC by Foster and Cauermethod.
UNIT-III	Network Filters: Classification of filters, Characteristic impedance in the pass bandand stop band, Constant K filters, M-derived filters, BPF and BSF. Insertion loss andreflectionfactor,Attenuators,Equalizer, T section andPi section filters,TwinTnetworks,Bridged Tand lattice networks.
UNIT-IV	TransmissionLineTheory:Transmissionlineequation,Primaryandsecondaryconstants, Infinite line, Attenuation and phase constants, Skin effect, Wavelength,Velocityofpropagation,Groupvelocity.Waveformdistortion,Distortionlesstransmission line telephone cable, Inductance loading of telephone cables. Open andshortcircuitlines. TransmissionLineatRadioFrequencies:Linewithanytermination,Inputimpedance,input impedance of a lossless line, Reflection coefficient, Standing waveratio.Ultrahighfrequencylines,Characteristicsimpedance,SWR,Smithchart,Applications of smith chart-Quarter wave transformer-Stub matching, Single anddouble.

3. Principles of communication (Syllabus)

UNIT-I	NoiseandAmplitudeModulation:Generalcommunicationsystems-externalandinternal noise, Noise figure and noise temperature, AWGN, Need for modulation,Amplitude modulation, Frequency spectrum, Power relation, Different types of AMmodulators, SSB and VSB generation, AM transmitters, Block diagram, Functions ofeachblock-Highleveltransmitter.
UNIT-II	Angle Modulation: Principle of frequency and phase modulation, Relation between FMand PM waves, Bandwidth of FM, Narrow band and wideband FM, Generation of FMwave, Direct and Indirect methods, FM transmitters, Block diagram, Function of eachblock.
UNIT-III	DetectionandReceivers:Detection-Diodedetectors-Synchronousdetection-FMdetectors-Slope detectors-Phase discriminators-Ratio detectors. Receivers, Differenttypessuperheterodynereceivers,Blockdiagram-choiceofIFandoscillatorfrequencies, Tracking-Alignment-AVC, AFC-Communication receivers, AM and FM,Receivercharacteristics.
UNIT-IV	Pulse Modulation Systems and RADAR: Sampling theorem-Generation and detectionof PAM, PWM and PPM-Conversion of PWM to PPM, TDM and FDM. Basic principles ofRADAR system, Range equation, Pulse radar system, MIT radar, CW Radar, FM CWRadar. Television: Introduction of Television-Television systems and standards-Black andwhitetransmission-blackandwhitereception-colortransmissionandreception-IntroductiontomodernTVcameras,LCDand plasmadisplays.

4. Waveguide, Antennas and wave propagation (Syllabus)

UNIT-I	Guided Waves: Introduction, Waves between parallel planes, Transverseelectricwaves, Transverse magnetic waves, Transverse electromagnetic waves and theircharacteristics, Wave impedances. Rectangular waveguides, TE and TM waves inrectangularwaveguide,Dominantmode,ImpossibilityofTEMwavesin waveguides, Waveimpedanceandcharacteristicimpedance,Excitationmethodsforva riousmodes.
UNIT-II	Circular Wave Guides: Introduction, TE and TM waves in circular waveguide, Waveimpedance, Attenuation factor and Q of wave guides, Wave impedance, Excitationmodes in circular wave guides. Microwave resonators introduction, Coaxial resonator,Waveguide,Rectangularandcircularcavityresonator,Cavitye xcitationandtuning, Qfactorofmicrowavecavities(Qualitativetreatmentonly).
UNIT-III	Antenna Fundamentals: Power density, Directivity, Gain, Radiation resistance, Inputimpedance, Radiation patterns, Beam width, Bandwidth and polarization. Retardedpotential,Radiationfromacurrentelementandmonopole,Radia tionofhalf-waveand centre-fed dipole, Near and far fields, Current distribution of dipole antennas.Linear and array antennas, Arrays of two point sources, Broad side and end firearrays,Binomialarray,Principleofpatternmultiplication–Adaptive arrays. Special Purpose Antennas: (Qualitative treatment only) Loop antennas, Travellingwave antennas, V and rhombic antennas, Horn antennas, Yagi-Uda arrays, Widebandantennas,Logperiodicantennas.Babinet"sprinciple,Slotradi ators,Parabolicreflectors,Radiationpattern,Apertureefficiencies,Feedi ngtechniquesforparabolic antennas.
UNIT-IV	Propagation: Factors involved in the propagation of radio waves, Ground wave,reflection of radio waves by the surface of the earth, Space wave propagation,considerationsinspacewavepropagation,Atmosphericeffe ctinspacewavepropagation, Ionosphere and its effect on radio waves, Mechanism of ionosphericpropagation,Ray paths,Skipdistance-Criticalfrequency-Maximumusablefrequency -Fadingofsignal,Typesoffading,Diversityreception.

MEWAR UNIVERSITY
Chittorgarh (Rajasthan)
15/6/2017

MEWAR UNIVERSITY CHITTORGARH (RAJASTHAN)
Two - Year (Regular) M Tech: Digital Communication

First Semester

Course Code	Course Title	Contact Hours per week		Credit Hours	Internal Assessment/Evaluation		External Examination /Viva-voce	Total Marks
		L	P		Assignments /Lab Record	Teacher's Evaluation		
DC – 611	Advanced Digital Communications	4	-	4	30	10	60	100
DC – 613	Satellite Communication	4	-	4	30	10	60	100
DC – 615	Mobile Communication	4	-	4	30	10	60	100
DC – 711/713/715	Elective – I	3	-	3	20	10	45	75
DC – 721/723/725	Elective – II	3	-	3	20	10	45	75
DC – 617	Communication Systems Lab	-	2	2	15	10	25	50
Total Semester Credits = 20					**Total Semester Marks = 500**			

Second Semester

Course Code	Course Title	Contact Hours per week		Credit Hours	Internal Assessment/Evaluation		External Examination /Viva-voce	Total Marks
		L	P		Assignments /Lab Record	Teacher's Evaluation		
DC – 612	Information Theory and Coding	4	-	4	30	10	60	100
DC – 614	Digital Signal Processing and its Applications	4	-	4	30	10	60	100
DC – 616	Data Communication and Computer Networks	4	-	4	30	10	60	100
DC – 712/714/716	Elective – III	3	-	3	20	10	45	75
DC – 722/724/726	Elective – IV	3	-	3	20	10	45	75
DC -618	Digital Signal Processing Lab	-	2	2	15	10	25	50
Total Semester Credits = 20					**Total Semester Marks = 500**			

Third Semester

Course Code	Course Title	Contact Hours per week		Credit Hours	Internal Assessment/Evaluation		External Examination /Viva-voce	Total Marks
		L	P		Assignments /Report	Teacher's Evaluation		
DC – 621	Optical Communication	4	-	4	30	10	60	100
DC – 623	Antenna and Wave Propagation	4	-	4	30	10	60	100
DC - 625	Research Methodology	2	-	2	-	-	50	50
DC- 627	Dissertation (Phase-I)	-	8	8	40	40	120	200
DC – 629	Seminar	-	6	6	30	30	90	150
Total Semester Credits = 24					**Total Semester Marks = 600**			

Fourth Semester

Course Code	Course Title	Contact Hours per week		Credit Hours	Internal Assessment/Evaluation		External Examination /Viva-voce	Total Marks
		L	P		Report	Supervisor (s) Evaluation		
DC – 628	Dissertation (Phase-II)	-	16	16	75	75	250	400
Total Semester Credits = 16					**Total Semester Marks = 400**			

LIST OF ELECTIVES

ELECTIVE – I

1.	DC – 711	Network Protocol Design
2.	DC – 713	Low-Power VLSI Design
3.	DC – 715	Modern Telephone Switching Systems

ELECTIVE – II

1.	DC –721	RF and Microwave Circuit Design
2.	DC –723	Design of Communication Networks
3.	DC – 725	Modeling and Simulation of Data Networks

ELECTIVE – III

1.	DC – 712	Digital Image Processing
2.	DC – 714	Photonic Network and Switching
3.	DC – 716	Micro-Electro-Mechanical-Systems (MEMS)

ELECTIVE – IV

1.	DC –722	Microwave Communication
2.	DC –724	VLSI Design
3.	DC –726	Internet and Intranet

OFFICE OF REGISTRAR

MEWAR UNIVERSITY, GANGRAR CHITTORGARH RAJ

Ref. No.: MU/RO/2017/402-B **01st April 2017**

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 12 of the Statutes of Mewar University, as under:

1)	Prof.(Dr.) R.K. Paliwal (Dean of Engineering)	-Chairman
2)	Prof (Dr.) Dinesh Birla, RTU, Kota	-External Member
3)	Dr. Vinod Kumar Yadav, CTE, Secure Meters Udaipur	-External Member
4)	Mr. Prahlad Chandra Tiwari, Asst. Engineer, AVVNL, Rajasthan	-External Member
5)	Mr. Mantosh Kumar, Assistant Professor	-Member
6)	Mr. Rajkiran B, Assistant Professor	-Member
7)	Mr. BSSPM Sharma, Assistant Professor	-Member
8)	Mr. V. Siva Brahmaiah Rama(HOD,EE)	-Convener

The terms of reference for the Board of Studies are as provide in rule 12 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, 2017. 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)

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

DATE: 15-06-2017

Minutes of Meeting of Board of Studies

Minutes of theBOS of the Department ofElectrical Engineering meeting held on 15-06-2017in Room No. 211 at 11.30 AM.

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

1) Prof.(Dr.) R.K.Paliwal (Dean of Engineering) -Chairman
2) Prof (Dr.) Dinesh Birla, RTU, Kota -External Member
3) Dr. Vinod Kumar Yadav, CTE, Secure Meters Udaipur -External Member
4) Mr. Prahlad Chandra Tiwari, Asst. Engineer, AVVNL, Rajasthan -External Member
5) Mr. Mantosh Kumar, Assistant Professor -Member
6) Mr. Rajkiran B, Assistant Professor -Member
7) Mr. BSSPM Sharma, Assistant Professor -Member
8) 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 13-06-2016

Resolution: Minutes of the previous BOS of the Electrical Engineering Department held on 13-06-2016 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 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 (Electrical Engineering) for the session 2017-18.**(Annexure 2)**

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 session 2017-18 is mentioned below. **(Annexure 3)**
   - Industrial Electrical Systems
   - Power System Dynamics And Control
   - Digital Control Systems
   - Computer Architecture
   - Electromagnetic Waves
2. Addition of a New Department Elective Course in M.Tech (Renewable Energy and Power System Engineering). **(Annexure 4)**

S.No.	Program Code	Course Name
1	M.Tech-RE	Green Buildings
2	M.Tech-PSE	Energy Management & Audit

Agenda 5: Any other suggestions by BOS Committee

Resolution: Further based on suggestions of Prof (Dr.) Dinesh Birla, Professor & Head of Department (RTU, Kota), Dr. Vinod Kumar Yadav, Associate Professor (CTAE, Udaipur) and Mr. Prahlad Chandra Tiwari, Asst. Engineer, AVVNL, Ajmer, Rajasthan, it is decided to Complete the revision of the syllabus & Scheme of B.Tech-EE should be revised subjects are included based on the skill development course & Industry based subjects and one more Suggestion given by the expert to improve the department by open new p Graduate Programme level programme with various specialization like B.Tech in ICE, B.Tech in EEE & B.Tech Electrical Engineering integrated with mechatronics as well as Computer Science.

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 ELECTRICAL ENGINEERING

DATE: 15-06-2017

Annexure I Attendance Sheet

SN	Name	Designation	Post	Signature
1	Prof.(Dr.) R.K.Paliwal	Dean of Engineering & Technology	Chairman	
2	Prof (Dr.) Dinesh Birla	Professor & Head of Department (RTU, Kota)	External Member	
3	Dr. Vinod Kumar Yadav	Associate Professor (CTAE, Udaipur)	External Member	
4	Mr. Prahlad Chandra Tiwari	Asst. Engineer, AVVNL, Ajmer, Rajasthan	External Member	
5	Mr. Mantosh Kumar	Dy. HOD, Assistant Professor	Internal Member	
6	Mr. Rajkiran B	Assistant Professor	Internal Member	
7	Mr. BSSPM Sharma	Assistant Professor	Internal Member	
8	Dr. V. Siva Brahmaiah	Assistant Professor &HOD	Convener	

INDUSTRIAL ELECTRICAL SYSTEMS

Course Outcomes:

At the end of this course, students will demonstrate the ability to

- Understand the electrical wiring systems for residential, commercial and industrial consumers, representing the systems with standard symbols and drawings, SLD.
- Understand various components of industrial electrical systems.
- Analyze and selectthe proper size of various electrical system components.

Module 1: Electrical System Components LT system wiring components, selection of cables, wires, switches, distribution box, metering system, Tariff structure, protection components- Fuse, MCB, MCCB, ELCB, inverse current characteristics, symbols, single line diagram (SLD) of a wiring system, Contactor, Isolator, Relays, MPCB, Electric shock and Electrical safety practices

Module 2: Residential and Commercial Electrical Systems

Types of residential and commercial wiring systems, general rules and guidelines for installation, load calculation and sizing of wire, rating of main switch, distribution board and protection devices, earthing system calculations, requirements of commercial installation, deciding lighting scheme and number of lamps, earthing of commercial installation, selection and sizing of components.

Module 3: Illumination Systems

Understanding various terms regarding light, lumen, intensity, candle power, lamp efficiency, specific consumption, glare, space to height ratio, waste light factor, depreciation factor, various illumination schemes, Incandescent lamps and modern luminaries like CFL, LED and their operation, energy saving in illumination systems, design of a lighting scheme for a residential and commercial premises, flood lighting.

Module 4: Industrial Electrical Systems I

HT connection, industrial substation, Transformer selection, Industrial loads, motors, starting of motors, SLD, Cable and Switchgear selection, Lightning Protection, Earthing design, Power factor correction – kVAR calculations, type of compensation, Introduction to PCC, MCC panels. Specifications of LT Breakers, MCB and other LT panel components.

Module 5: Industrial Electrical Systems II

DG Systems, UPS System, Electrical Systems for the elevators, Battery banks, Sizing the DG, UPS and Battery Banks, Selection of UPS and Battery Banks.

Module 6: Industrial Electrical System Automation

Study of basic PLC, Role of in automation, advantages of process automation, PLC based control system design, Panel Metering and Introduction to SCADA system for distribution automation.

Text/Reference Books

1. S.L. Uppal and G.C. Garg, "Electrical Wiring, Estimating & Costing", Khanna publishers, 2008.
2. K. B. Raina, "Electrical Design, Estimating & Costing", New age International, 2007.
3. S. Singh and R. D. Singh, "Electrical estimating and costing", Dhanpat Rai and Co., 1997.
4. Web site for IS Standards.
5. H. Joshi, "Residential Commercial and Industrial Systems", McGraw Hill Education, 2008.

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

POWER SYSTEM DYNAMICS AND CONTROL

Course Outcomes:

At the end of this course, students will demonstrate the ability to

- Understand the problem of power system stability and its impact on the system.
- Analyse linear dynamical systems and use of numerical integration methods.
- Model different power system components for the study of stability.
- Understand the methods to improve stability.

Module 1: Introduction to Power System Operations

Introduction to power system stability. Power System Operations and Control. Stability problems in Power System. Impact on Power System Operations and control.

Module 2 : Analysis of Linear Dynamical System and Numerical Methods

Analysis of dynamical System, Concept of Equilibrium, Small and Large Disturbance Stability. Modal Analysis of Linear System. Analysisusing Numerical Integration Techniques. Issues in Modeling: Slow and Fast Transients, Stiff System.

Module 3 : Modeling of Synchronous Machines and Associated Controllers

Modeling of synchronous machine: Physical Characteristics. Rotor position dependent model. D Q Transformation. Model with Standard Parameters. Steady State Analysis of Synchronous Machine. Short Circuit Transient Analysis of a Synchronous Machine. Synchronization of Synchronous Machine to an Infinite Bus. Modeling of Excitation and Prime Mover Systems. Physical Characteristics and Models. Excitation System Control. Automatic Voltage Regulator. Prime Mover Control Systems. Speed Governors.

Module 4 : Modeling of other Power System Components

Modeling of Transmission Lines and Loads. Transmission Line Physical Characteristics. Transmission Line Modeling. Load Models - induction machine model. Frequency and Voltage Dependence of Loads. Other Subsystems – HVDC and FACTS controllers, Wind Energy Systems.

Module 5 : Stability Analysis

Angular stability analysis in Single Machine Infinite Bus System. Angular Stability in multi machine systems – Intra-plant, Local and Inter-area modes. Frequency Stability: Centre of Inertia Motion.

Load Sharing: Governor droop. Single Machine Load Bus System: Voltage Stability. Introduction to Torsional Oscillations and the SSR phenomenon. Stability Analysis Tools: Transient Stability Programs, Small Signal Analysis Programs.

Module 6 : Enhancing System Stability

Planning Measures. Stabilizing Controllers (Power System Stabilizers). Operational Measures-Preventive Control. Emergency Control.

Text/Reference Books

1. K.R. Padiyar, "Power System Dynamics, Stability and Control", B. S. Publications, 2002.
2. P. Kundur, "Power System Stability and Control", McGraw Hill, 1995.
3. P. Sauer and M. A. Pai, "Power System Dynamics and Stability", Prentice Hall, 1997.

DIGITAL CONTROL SYSTEMS

Course Outcomes:

At the end of this course, students will demonstrate the ability to

- Represent signals mathematically in continuous and discrete-time, and in the frequency domain.
- Analyse discrete-time systems using z-transform.
- Understand the Discrete-Fourier Transform (DFT) and the FFT algorithms.
- Design digital filters for various applications.
- Apply digital signal processing for the analysis of real-life signals.

Module 1: Discrete-time signals and systems

Discrete time signals and systems: Sequences; representation of signals on orthogonal basis; Representation of discrete systems using difference equations, Samplingand reconstruction of signals - aliasing; Sampling theorem and Nyquist rate.

Module 2: Z-transform

z- Transform, Region of Convergence, Analysis of Linear Shift Invariant systems using z transform, Properties of z-transform for causal signals, Interpretation of stability in z-domain, Inverse z transforms.

Module 2: Discrete Fourier Transform

Frequency Domain Analysis, Discrete Fourier Transform (DFT), Properties of DFT, Convolution of signals, Fast Fourier Transform Algorithm, Parseval's Identity, Implementation of Discrete Time Systems.

Module 3: Designof Digital filters

Design of FIR Digital filters: Window method, Park-McClellan's method. Design of IIR Digital Filters: Butterworth, Chebyshev and Elliptic Approximations; Low-pass, Band-pass, Band-stop and High-pass filters. Effect of finite register length in FIR filter design. Parametric and non-parametric spectral estimation. Introduction to multi-rate signal processing.

Module 4: Applications of Digital Signal Processing

Correlation Functions and Power Spectra, Stationary Processes, Optimal filtering using ARMA Model, Linear Mean-Square Estimation, Wiener Filter.

Text/Reference Books:

1. S. K. Mitra, "Digital Signal Processing: A computer based approach", McGraw Hill, 2011.
2. A.V. Oppenheim and R. W. Schafer, "Discrete Time Signal Processing", Prentice Hall, 1989.
3. J. G. Proakis and D.G. Manolakis, "Digital Signal Processing: Principles, Algorithms And Applications",
Prentice Hall, 1997.
4. L. R. Rabiner and B. Gold, "Theory and Application of Digital Signal Processing", Prentice Hall, 1992.
5. J. R. Johnson, "Introduction to Digital Signal Processing", Prentice Hall, 1992.
6. D. J. De Fatta, J. G. Lucas andW. S. Hodgkiss, "Digital Signal Processing", John Wiley & Sons, 1988.

COMPUTER ARCHITECTURE

Course Outcomes:

At the end of this course, students will demonstrate the ability to

- Understand the concepts of microprocessors, their principles and practices.
- Write efficient programs in assembly language of the 8086 family of microprocessors.
- Organize a modern computer system and be able to relate it to real examples.
- Develop the programs in assembly language for 80286, 80386 and MIPS processors in real
- and protected modes.
- Implement embedded applications using ATOM processor.

Module 1: Introduction to computer organization

Architecture and function of general computer system, CISC Vs RISC, Data types, Integer Arithmetic - Multiplication, Division, Fixed and Floating point representation and arithmetic, Control unit operation, Hardware implementation of CPU with Micro instruction, microprogramming, System buses, Multi-bus organization.

Module 2: Memory organization

System memory, Cache memory - types and organization, Virtual memory and its implementation, Memory management unit, Magnetic Hard disks, Optical Disks.

Module 3: Input – output Organization

Accessing I/O devices, Direct Memory Access and DMA controller, Interrupts and Interrupt Controllers, Arbitration, Multilevel Bus Architecture, Interface circuits - Parallel and serial port. Features of PCI and PCI Express bus.

Module 4: 16 and 32 microprocessors

80x86 Architecture, IA – 32 and IA – 64, Programming model, Concurrent operation of EU and BIU, Real mode addressing, Segmentation, Addressing modes of 80x86, Instruction set of 80x86, I/O addressing in 80x86

Module 5: Pipelining

Introduction to pipelining, Instruction level pipelining (ILP), compiler techniques for ILP, Data hazards, Dynamic scheduling, Dependability, Branch cost, Branch Prediction, Influence on instruction set.

Module 6: Different Architectures

VLIW Architecture, DSP Architecture, SoC architecture, MIPS Processor and programming

Text/Refence Books

1. V. Carl, G. Zvonko and S. G. Zaky, "Computer organization", McGraw Hill, 1978.
2. B. Brey and C. R. Sarma, "The Intel microprocessors", Pearson Education, 2000.
3. J. L. Hennessy and D. A. Patterson, "Computer Architecture A Quantitative Approach", Morgan Kauffman, 2011.
4. W. Stallings, "Computer organization", PHI, 1987.
5. P. Barry and P. Crowley, "Modern Embedded Computing", Morgan Kaufmann, 2012.
6. N. Mathivanan, "Microprocessors, PC Hardware and Interfacing", Prentice Hall, 2004.
7. Y. C. Lieu and G. A. Gibson, "Microcomputer Systems: The 8086/8088 Family", Prentice Hall India, 1986.
8. J. Uffenbeck, "The 8086/8088 Design, Programming, Interfacing", Prentice Hall, 1987.
9. B. Govindarajalu, "IBM PC and Clones", Tata McGraw Hill, 1991.
10. P. Able, "8086 Assembly Language Programming", Prentice Hall India.

Head
Department of
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Mewar University, Chittorgarh (Raj.)

ELECTROMAGNETIC WAVES

Course Outcomes:

At the end of this course, students will demonstrate the ability to

- Analyse transmission lines and estimate voltage and current at any point on transmission line for different load conditions.
- Provide solution to real life plane wave problems for various boundary conditions.
- Analyse the field equations for the wave propagation in special cases such as lossy and low loss dielectric media.
- Visualize TE and TM mode patterns of field distributions in a rectangular wave-guide.
- Understand and analyse radiation by antennas.

Module 1: Transmission Lines

Introduction, Concept of distributed elements, Equations of voltage andcurrent, Standing waves and impedance transformation, Lossless and low-loss transmission lines, Power transfer on a transmission line, Analysis of transmission line in terms of admittances, Transmission line calculations with the help of Smith chart, Applications of transmission line, Impedance matching using transmission lines.

Module 2: Maxwell's Equations

Basic quantities of Electromagnetics, Basic laws of Electromagnetics: Gauss's law, Ampere's Circuital law, Faraday's law of Electromagnetic induction. Maxwell's equations, Surface charge and surface current, Boundary conditions at media interface.

Module 3: Uniform Plane Wave

Homogeneous unbound medium, Wave equation for time harmonic fields, Solution of the wave equation, Uniform plane wave, Wave polarization, Wave propagation in conducting medium, Phase velocity of a wave, Power flow and Poynting vector.

Module 4: Plane Waves at Media Interface

Plane wave in arbitrary direction, Plane wave at dielectric interface, Reflection and refraction of waves at dielectric interface, Total internal reflection, Wave polarization at media interface, Brewster angle, Fields and power flow at media interface, Lossy media interface, Reflection from conducting boundary.

Module 5: Waveguides

Parallel plane waveguide: Transverse Electric (TE) mode, transverse Magnetic(TM) mode, Cut off frequency, Phase velocity and dispersion. Transverse Electromagnetic (TEM) mode, Analysis of waveguide-general approach, Rectangular waveguides.

Module 6: Antennas

Radiation parameters of antenna, Potential functions, Solution for potential functions, Radiations from Hertz dipole, Near field, Far field, Total power radiated by a dipole, Radiation resistance and radiation pattern of Hertz dipole, Hertz dipole in receiving mode.

Text/Reference Books

1. R. K. Shevgaonkar, "Electromagnetic Waves", Tata McGraw Hill, 2005.
2. D. K. Cheng, "Field and Wave Electromagnetics", Addison-Wesley, 1989.
3. M. N.O. Sadiku, "Elements of Electromagnetics", Oxford University Press, 2007.
4. C. A. Balanis, "Advanced Engineering Electromagnetics", John Wiley & Sons, 2012.
5. C. A. Balanis, "Antenna Theory: Analysis and Design", John Wiley & Sons, 2005.

Electrical Engineering
Mewar University, Chittorgarh (Raj.)

GREEN BUILDINGS

Unit I: Introduction to architecture; Building science and its significance; Energy management concept in building - Thermal Analysis And Design For Human Comfort - Thermal comfort; Criteria and various parameters; Psychometric chart; Thermal indices, climate and comfort zones; Concept of sol-air temperature and its significance; Calculation of instantaneous heat gain through building envelope;

Unit II: Calculation of solar radiation on buildings; building orientation; Introduction to design of shading devices; Overhangs; Factors that effects energy use in buildings; Ventilation and its significance; Air-conditioning systems; Energy conservation techniques in air-conditioning systems Passive Cooling And Heating Concepts - Passive heating concepts: Direct heat gain, indirect heat gain, isolated gain and sunspaces; Passive cooling concepts: Evaporative cooling, radiative cooling; Application of wind, water and earth for cooling; Shading, paints and cavity walls for cooling; Roof radiation traps; Earth air-tunnel.

Unit III: Heat Transmission In Buildings - Surface co-efficient: air cavity, internal and external surfaces, overall thermal transmittance, wall and windows; Heat transfer due to ventilation/infiltration, internal heat transfer; Solar temperature; Decrement factor; Phase lag. Design of daylighting

Unit IV: Estimation of building loads: Steady state method, network method, numerical method, correlations; Computer packages for carrying out thermal design of buildings and predicting performance. Bioclimatic Classification - Bioclimatic classification of India; Passive concepts appropriate for the various climatic zones in India; Typical design of selected buildings in various climatic zones; Thumb rules for design of buildings and building codes.

Unit V: Energy Efficient Landscape Design -Modification of microclimatic through landscape element for energy conservation; Energy conservation through site selection, planning, and design; Siting and orientation – GRIHA – Certification of Green Buildings

References:

1. M.S.Sodha, N.K. Bansal, P.K. Bansal, A. Kumar and M.A.S. Malik, Solar Passive Building, Science and Design, Pergamon Press, 1986.

2. J.R. Williams, Passive Solar Heating, Ann Arbar Science, 1983.

3. R.W.Jones, J.D. Balcomb, C.E. Kosiewiez, G.S. Lazarus, R.D. McFarland and W.O. Wray, Passive Solar Design Handbook, Vol. 3, Report of U.S. Department of Energy (DOE/CS-0127/3), 1982.

4. J Krieder and A Rabi Heating and Cooling of Buildings : Design for Efficiency, McGraw-Hill (1994)

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5. R D Brwon, T J Gillespie, Microclimatic Landscape Design, John Wiley & Sons, New York, 1990.

6. D.S. Lal, Sharda Pustak Bhawan, Climatology,Allahabad, (2003)

7. Majumder Milli, Energy Efficient Buildings, TERI, New Delhi 2002

8. T A Markus, E N Morris, Building, Climate and Energy, Spottwoode Ballantype Ltd. London, 1980.

9.Sanjay Prakash (et al.), Solar architecture and earth construction in the North West Himalaya,Vikas, New Delhi,1991

10.Energy Research Group, CD Rom Version 2 , LIOR Ireland, Solar Bioclimatic Architecture,1999

Energy Management & Audit

Introduction: Energy Scenario – global, sub continental and Indian, Energy economy relation, Future energy demand and supply scenario, Integrated energy planning with particular reference to Industrial Sector in India, Captive power units and others – demand v/s supply.

Types of Energy: Physical Aspects of Energy: Classification of energy – Hydel, Thermal, Nuclear, Wind, & from Waste Products. Efficiency and effectiveness of energy utilization in Industry. Energy and energy analysis. Renewable and nonrenewable energy, Conventional and unconventional energy.

Demand Side Management: Energy Demand Management: Energy utilization, Instrumentation and data analysis, Financial aspects of energy management, Energy management as a separate function and its place in plant management hierarchy.

Energy Planning, Energy Staffing, Energy Organization, Energy Requirement. Energy Costing, Energy Budgeting, Energy Monitoring, Energy Consciousness, Energy Conversions, Energy Efficient Equipment, Energy Management Professionals, Environment Pollution due to Energy Use, Components of Pollution, Harmful Effects of Pollution, Measures taken to combat Pollution.

Energy Audit and Energy Saving: Energy Audit and analysis, Energy load measurements, System evaluation and simulation, Energy saving techniques and guidelines: Administrative control, Proper Measurement and monitoring system, Process control, proper planning & scheduling, Increasing capacity utilization, Improving equipment control, waste heat recovery, Change of energy source. Upgradation of Technology. Change of product specifications, Use of High efficiency equipment, Design modification for better efficiency, Improved periodic maintenance;

Energy Control Centers: Remote Telemetry; Remote Terminal Units; IEC TC 57 (870-5-1) Protocol Standard; Data Acquisition Procedure; Data Handling and Organization; Real Time Database; Alarm and Events; Disturbance Processing; Fault Locating Technology; Real Time Display; MIMIC Boards; Supervisory Remote Control; Load Dispatch Control Centers; Distribution Control Centers; Time Keeping Systems;

Integration of Distributed and Renewable Energy Systems to Power Grids: DC-to-AC Converters; AC-to-AC Converters; DC-to-DC Converters; Plug-In Hybrid Electric Vehicles; Energy Storage Technologies; Microgrids;

R.V. Head of ... ering

Legal Provisions: The Prevention and Control of Pollution Act, 1974, The Energy Conservation Act, 2001, The Environmental Protection Act, 1986. The Electricity Act, 2003. National Electricity Policy. Rural Electrification.

Reference Books:

1. Paul W., O'callaghan; "Energy Management", McGraw Hill Book Company

2. Steve Doty, Wayne C. Turner; "Energy Management Handbook", Fairmont Press Inc., GA 30047

3. Barny L. Capehart, Wainey C. Turner, William J. Kennedy; "Guide to Energy Management", Fairmont Press Inc., GA 30047

4. Handbook of Energy Engineering, Albert Thumann & Paul Mehta, The Fairmont Press, INC.

5. NPC energy audit manual and reports 6. Cleaner Production – Energy Efficiency Manual for GERIAP, UNEP, Bangkok prepared by National Productivity Council

7. www.bee.org

R.V.S.

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

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/20217/ 993-A **18th May, 2017**

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 Rule12 of the proposed Statutes of Mewar University, as under:

1.	Prof. (Dr.) Tanveer Ahmed Kazi	Professor & Dean	- Chairman
2.	Mr. B.L. Pal	Assistant Professor& HOD	-Convener
3.	Prof. R. K. Somani	Principal Bal Krishna Institute Of Technology, Kota,	- External Member
4.	Prof. (Dr.) Prasun Chakrabarti	Sr. Chair Professor, Techno India NJR, Udaipur	External Member
5.	Dr. Awanit Kumar	Sangam University, Bhilwara	-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 12 or the proposed 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 September. 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 COMPUTER SCIENCE & ENGINEERING

DATE: 15th June 2017

Minutes of Meeting of Board of Studies

The Board of Studies Meeting of the Department of Computer Science & Engineering was held on 15th June 2017 in Room No. 135 at 11:00 am onwards to approve the new/changes in curriculum and syllabus revision for session 2017-18.

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

1. Prof. R. K. Paliwal, Professor & Dean	- Chairman
2. Mr. B.L. Pal Assistant Professor & HOD	-Convener
3. Prof. R. K. Somani, Principal Bal Krishna Institute of Technology, Kota,	- External Member
4. Prof. (Dr.) Prasun Chakrabarti, SPSU, Udaipur	-External Member
5. Ms. Shruti Gujarati, Infosys Ltd, Noida	-Alumni
6. Mr. D. R. Yadav, Dy. G.M. (IT), BSL. LTD. Bhilwara	- Member from Industry
7. Ms. Jyoti Totla, Assistant Professor	- Internal Member 1
8. Mr. Arun Viashnav, Assistant Professor	- Internal Member 2

At the outset, Mr. B.L. Pal (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 13-06-2016

Resolution: Minutes of the previous BOS of the Computer Science & Engineering department held on 13-06-2016 were discussed and approved.

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

Resolution: Mr. B. L. Pal (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.

15/06/17

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

Agenda 3: Revision of Existing Programmes/ Courses

1. **Resolution:**In this BOS Meeting the Following Points were discussed as per industry demand:
   [A] B. Tech. Level: -
   - It was resolved to change the old syllabus with the proposed syllabus & scheme from the coming session

   [B] M. Tech. Level: -
   - It was resolved to change the old syllabus with the proposed syllabus & scheme from the coming session **(Annexure 2)**

Agenda 4: Introduction of New Programmes/Course

Resolution:

1. Suggestionsreceived from previous BOS committee members, five new courses will be introduced for the upcoming session 2017-18 for B.Tech CSE students. The courses are mentioned below**(Annexure 3)**
   - UI Technology
   - Introduction to Python Programming
   - Cloud Computing
   - IOT
   - AWS for CLOUD COMPUTING
2. Suggestionsreceived from previous BOS committee members, two new courses will be introduced for the upcoming session 2017-18 in M.Tech CSE. The courses are mentioned below **(Annexure 4)**
   - Parallel And Distributed Computing
   - Deep Learning

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.

15/06/17

MEWAR UNIVERSITY Chittorgarh-312901 (Raj.)

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

DATE: 15th June 2017

Annexure 1: Attendance Sheet

SN	Name	Designation	Post	Signature
1	Prof. R. K. Paliwal	Professor & Dean	Dean-Chairman	
2	Mr. B.L. Pal	Assistant Professor&HOD	HOD-Convener	
3	Prof. R. K. Somani	Principal Bal Krishna Institute Of Technology, Kota,	External Member 1	
4	Prof. (Dr.) PrasunChakrabarti	SPSU, Udaipur	External Member 2	
5	Ms. Shruti Gujarati	Infosys Ltd, Noida	Alumni	
6	Mr. D. R. Yadav	Dy. G.M. (IT), BSL. LTD. Bhilwara	Member from Industry	
7	Ms. JyotiTotla	Assistant Professor	Internal Member 1	
8	Mr. ArunViashnav	Assistant Professor	Internal Member 2	

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,

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

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

INTERNET OF THINGS

Unit –I	**INTRODUCTION TO IOT** : Definitions and functional requirements – Vision and concept – identification – Open research issues – security and privacy – Components of Internet of Things: Control units – Sensors – Communication modules – Power sources. Communication technologies: RFID – Bluetooth – ZigBee – WiFi – RF Links –Wired Communication. Basics of sensors and actuators – Sensor technology – Actuators.
Unit –II	**IOT ECOSYSTEM USING WIRELESS TECHNOLOGIES:** Sensor data communication protocols – Radio frequency identification (RFID) technology – Wireless sensor networks technology – Architecture for IoT using mobile devices - Mobile technologies for supporting IoT ecosystem - Energy harvesting for power conservation in the IoT system - Data analytics – Knowledge acquiring, managing and storing processes.
Unit –III	**IOT REFERENCE ARCHITECTURE FOR ECOSYSTEM:** Infrastructure and Service discovery protocols for the IoT Ecosystem: Introduction - Layered architecture for IoT - Protocol architecture of IoT - Infrastructure Protocols - Device or service discovery for IoT - Protocols for IoT service discovery. Device integration protocols and Middleware. Internet-based connection: 6LoWPAN, TCP / IP suite. Web communication protocols for connected devices – Message communication protocols for connected devices – Web connectivity for connected devices network using gateway, SOAP, REST, HTTP RESTful and web sockets.
Unit –IV	**PROGRAMMING THE MICROCONTROLLER FOR IOT:** Arduino / equivalent Microcontroller platform: Microcontrollers – Development environment – Writing Arduino / equivalent software – Programming microcontroller for IoT. Reading from sensors – Connecting microcontroller with mobile devices: Communicating using Bluetooth and USB. Connecting microcontroller using Ethernet and WiFi. **FROM THE INTERNET OF THINGS TO THE WEB OF THINGS** : Designing RESTful smart things – Web-enabling constrained devices – The future Web of Things – Cloud computing: Basic services and architectures – Open cloud computing services for sensor management: COSM – Nimbits – Sensor Cloud. IoT cloud-based services

Subject- AWS For Cloud Computing

Unit –I	**INTRODUCTION TO IOT** : Definitions and functional requirements – Vision and concept – identification – Open research issues – security and privacy – Components of Internet of Things: Control units – Sensors – Communication modules – Power sources. Communication technologies: RFID – Bluetooth – ZigBee – WiFi – RF Links –Wired Communication. Basics of sensors and actuators – Sensor technology –
UNIT-III	Security Management in AWS: User management through Identity Access Management (IAM), Various access policies across AWS Services, Security Token Services, AWS Resource Access Manager (RAM), AWS Single Sign-On (SSO), AWS Cognition, AWS Security & Encryption: KMS, CloudHSM, Shield, WAF, Guard Duty, API keys service access, Best practices for IAM, Access billing and create alerts on billing.
UNIT-IV	Amazon EC2, Object Storage options, Load Balancing: Elastic Load Balancer and its types, Advanced features of ELB, Launch Templates, Launch Configurations, Comparison of Classic, Network and Application Load Balancer, Auto-Scaling, Components of Auto Scaling, Life cycle of auto scaling, Working of Route 53, Various Routing Policies, Database Services and Analytics: Amazon RDS and its benefits, Read Replica, RDS IAM Authentication , DynamoDB, ElastiCache: Working, Redis vs Memcached, Amazon RedShift, Kinesis: AWS Kinesis Data Streams, AWS Kinesis Data Firehouse, AWS Lake Formation, AWS Athena, AWS QLDB, Networking and Monitoring Services,
UNIT-V	Applications Services and AWS Lambda: AWS Simple Email Service (SES), Implement SES, Demonstrate the working of SNS, SQS: Work with SQS, ASG with SQS, Amazon MQ, Amazon Event Bridge, AWS Simple Notification Service (SNS), AWS Simple Work Flow (SWF), AWS Lambda , AWS Serverless Application Model, Configuration Management and Automation, AWS Architectural Designs – I

Reference Books:

- Amazon Web Services Bootcamp by Sunil Gulabani
- Amazon Web Services in Action by Andreas Wittig and Michael Wittig
- AWS: Amazon Web Services by A.W.S. Smith
- AWS Automation Cookbook by Nikit Swaraj

PARALLEL AND DISTRIBUTED COMPUTING

UNIT-I

Introduction: Scope, issues, applications and challenges of Parallel and Distributed Computing Parallel Programming Platforms: Implicit Parallelism: Trends in Microprocessor Architectures, Dichotomy of Parallel Computing Platforms, Physical Organization, co-processing.

UNIT-II

Principles of Parallel Algorithm Design: Decomposition Techniques, Characteristics of Tasks and Interactions, Mapping Techniques for Load Balancing.

CUDA programming model: Overview of CUDA, Isolating data to be used by parallelized code, API function to allocate memory on parallel computing device, to transfer data.

UNIT-III

Analytical Modeling of Parallel Programs: Sources of Overhead in Parallel Programs, Performance Metrics for Parallel Systems, The Effect of Granularity on Performance, Scalability of Parallel Systems, Minimum Execution Time and Minimum Cost Optimal Execution Time

UNIT-IV

Dense Matrix Algorithms: Matrix-Vector Multiplication, Matrix-Matrix Multiplication, Issues in Sorting on Parallel Computers, Bubble Sort and Variants, Quick Sort Algorithm.

UNIT-V

Search Algorithms for Discrete Optimization Problems: Sequential Search Algorithms, Parallel Depth-First Search, Parallel Best-First Search, Speed up Anomalies in Parallel Search Algorithms

Recommended Books:

1. A Grama, AGupra, G Karypis, V Kumar. Introduction to Parallel Computing (2nd ed.). Addison

DEEP LEARNING

UNIT I

INTRODUCTION TO DEEP LEARNING Introduction to machine learning - Linear models (SVMs and Perceptron's, logistic regression)- Introduction to Neural Nets: What are a shallow network computes- Training a network: loss functions, back propagation and stochastic gradient descent- Neural networks as universal function approximates

UNIT II

INTRODUCTION TO DEEP LEARNING History of Deep Learning- A Probabilistic Theory of Deep Learning- Backpropagation and regularization, batch normalization- VC Dimension and Neural Nets-Deep Vs Shallow Networks Convolutional Networks- Generative Adversarial Networks (GAN), Semi-supervised Learning

UNIT.III

DIMENTIONALITY REDUCTION Linear (PCA, LDA) and manifolds, metric learning - Auto encoders and dimensionality reduction in networks - Introduction to Convnet - Architectures – AlexNet, VGG, Inception, ResNet - Training a Convnet: weights initialization, batch normalization, hyperparameter optimization.

Reference Books:

1. B. Yegnanarayana, "Artificial Neural Networks" Prentice Hall Publications.

2. Simon Haykin, "Artificial Neural Networks", Second Edition, Pearson Education.

3. Laurene Fausett, "Fundamentals of Neural Networks, Architectures, Algorithms and Applications", Prentice Hall publications.

4. Cosma Rohilla Shalizi, Advanced Data Analysis from an Elementary Point of View, 2015.

5. 2. Deng & Yu, Deep Learning: Methods and Applications, Now Publishers, 2013.

6. 3. Ian Goodfellow, Yoshua Bengio, Aaron Courville, Deep Learning, MIT Press, 2016.

OFFICE OF THE REGISTRAR

MEWAR UNIVERSITY, GANGRAR, CHITTORGARH (RAJ.)

Ref. No.: MU/RO/2017/374-A **25th March 2017**

OFFICE ORDER

Sub.: Reconstitution of Board of Studies for Department of Paramedical Science.

The Board of Studies for the Department of Paramedical Scienceis reconstituted as per Rule 12 of the Statutes of Mewar University, as under:

1) Prof. (Dr.) C.K. Sharma, Dean, faculty of health science. - Chairman
2) Mr. Rajendra Prasad Joshi, Principal, Sagar Hospital & Nursing College - External Member
3) Mr. Suresh Kumar Mahaseth, Lecturer, Dept. of MLT, IIT Dwarka, New Delhi. - External Member
4) Dr. Tushar Patel, Ayush Paramedical Institute, Valsad, Gujarat - External Member
5) Mr. Mukesh Kumar, Assistant Professor - Internal Member
6) Mr. Abid Majeed - Alumni
7) Mrs. Jaya Bharti, Head & Assistanat Professor - Convener

The terms of reference for the Board of Studies are as provided in Rule 12 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 first week of June 2017. 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 PARAMEDICAL SCIENCES

DATE: 05.06.2017

Minutes of Meeting of Board of Studies

The Board of Studies meeting of the Department of Paramedicalwas held on 05th June 2017 in Room No. 135 at 11:00 am onwards to approve the new curriculum and syllabus for session 2017-18.

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

1) Prof. (Dr.) C.K. Sharma, Dean, faculty of health science. - Chairman
2) Mr. Rajendra Prasad Joshi, Principal, Sagar Hospital & Nursing College - External Member
3) Mr. Suresh Kumar Mahaseth, Lecturer, Dept. of MLT, IIT Dwarka, New Delhi. - External Member
4) Dr. Tushar Patel, Ayush Paramedical Institute, Valsad, Gujarat - External Member
5) Mr. Mukesh Kumar, Assistant Professor - Internal Member
6) Mr. Abid Majeed - Alumni
7) Mrs. Jaya Bharti, Head & Assistanat Professor - Convener

Mrs. Jaya Bharti (Head, Department of Paramedical) 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 13-06-2016

Resolution: Minutes of the previous BOS of the Paramedical Department held on 13-06-2016 were discussed and approved.

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

Resolution: Mrs. Jaya Bharti (Head, Paramedical) presented a departmental activity report mentioning all the activities conducted related to curricular development, research development, faculty development and Industrial collaboration.

Agenda 3: Reviewof Existing Programmes/Courses

Resolution: The Committee reviewed and approved the scheme and syllabus of coursesfor BMLTfor the upcoming session from 2017-18.**(Annexure 2)**

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Agenda 4: Introduction of New Programmes/Course

Resolution:

The suggestionreceived from previous BOS committee members two new programmesB.Sc Cardiac Care and M.Sc MLT will be started in the upcoming session 2017-18. A listing of practical and marks distribution (scheme of practical) should be done and appended with the syllabus.**(Annexure 3)**

- B.Sc Cardiac Care
- M.Sc MLT

Agenda 5: Any other suggestions by BOS Committee

Resolution:

- As per the suggestions received from external members of BOS, it is decided that there should be a hospital facility for students which can provide practical exposure to the students.
- External members also suggest some reference books for running and new courses.
- Some of the instruments such as ECG should be present in the laboratory for cardiac care students.

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.

Annexure 1: Attendance Sheet

S.NO.	Name & Designation	Designation in BOS	Signature
1	Prof. (Dr.) C.K. Sharma, Dept. of Zoology	Chairman	
2	Mr. Rajendra Prasad Joshi, Principal, Sagar Hospital & Nursing college	External Member	
3	Mr. Suresh Kumar Mahaseth, Lecturer, Dept. of MLT, IIT Dwarka, New Dehli	External Member	
4	Dr. Tushar Patel, Ayush Paramedical Institute, Valsad, Gujrat	External Member	
5	Mr. Mukesh Kumar, Assistant Professor, MLT, MU.	Internal Member	
6	Ms. Jaya Bharti, Head, Paramedical	Convener	

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MEWAR UNIVERSITY

Examination Scheme (B.Sc Cardiac care Technology)

FIRST SEMESTER

THEORY

S.No	SUBJECT CODE	SUBJECTS	THEORY EXAM		TOTAL	CERDITS
			INTERNAL ASESSMENT(C/P/A)	EXTERNAL ASSESSMENT		
1	BCCT101	Anatomy I	(35+15) 50	50	100	4
2	BCCT102	Physiology I	(35+15) 50	50	100	4
3	BCCT103	Biochemistry	(35+15) 50	50	100	4
4	BCCT104	Basic microbiology	(35+15) 50	50	100	4
5	BCCT105	Basic pathology	(35+15) 50	50	100	4
6	ELGA101	ELGA I		25	25	1

PRACTICAL

S.No	SUBJECT CODE	SUBJECTS	PRACTICAL EXAM				TOTAL
			EXPERIMENTS	SPOTTER	VIVA	RECORD	
7	BCCT106	Anatomy I	20	30			50
8	BCCT107	Physiology I	20	30			50
9	BCCT108	Biochemistry	20	30			50
10	BCCT109	Pathology	20	30			50
11	BCCT110	Microbiology	20	30			50

SECOND SEMESTER

THEORY

S.No	SUBJECT CODE	SUBJECTS	THEORY EXAM		TOTAL	CERDITS
			INTERNAL ASESSMENT(C/P/A)	EXTERNAL ASSESSMENT		
1	BCCT201	Anatomy II	(35+15) 50	50	100	4
2	BCCT202	Physiology II	(35+15) 50	50	100	4
3	BCCT203	Pathology+ Microbiology	(35+15) 50	50	100	4
4	BCCT204	ELGA II	(35+15) 50	50	100	4

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PRACTICAL

S.No	SUBJECT CODE	SUBJECTS	PRACTICAL EXAM		VIVA	RECORD	TOTAL
			EXPERIMENTS	SPOTTER			
7	BCCT 206	Anatomy II	20		30		50
8	BCCT 207	Physiology II	20		30		50
	BCCT 208	Pathology+ Microbiology	20		30		50

THIRD SEMESTER

THEORY

S.No	SUBJECT CODE	SUBJECTS	THEORY EXAM		TOTAL	CERDITS
			INTERNAL ASESSMENT(C/P/A)	EXTERNAL ASSESSMENT		
1	BCCT301	Pharmacology	(35+15) 50	50	100	4
2	BCCT302	Psychology & sociology	(35+15) 50	50	100	4
3	BCCT303	Basic cardiac care technology	(35+15) 50	50	100	4
4	BCCT304	Environmental Science	(35+15) 50	50	100	4

TICAL

.No	SUBJECT CODE	SUBJECTS	PRACTICAL EXAM		VIVA	RECORD	TOTAL
			EXPERIMENTS	SPOTTER			
7	BCCT 305	Pharmacology	20		30		50
8	BCCT 306	Psychology & sociology	20		30		50
9	BCCT 307	Basic cardiac care technology	20		30		50

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FORTH SEMESTRE

THEORY

S.No	SUBJECT CODE	SUBJECTS	THEORY EXAM		TOTAL	CERDITS
			INTERNAL ASESSMENT(C/P/A)	EXTERNAL ASSESSMENT		
1	BCCT401	Basic Patient care	(35+15) 50	50	100	4
2	BCCT402	Basic cardiac Evaluation	(35+15) 50	50	100	4
3	BCCT403	Basics of Medical Disorders	(35+15) 50	50	100	4
4	BCCT404	Fundamentals of Computer Science	(35+15) 50	50	100	4
5	BCCT405	Hospital Training Short Term		150	150	6

PRACTICAL

S.No	SUBJECT CODE	SUBJECTS	PRACTICAL EXAM		VIVA	RECORD	TOTAL
			EXPERIMENTS	SPOTTER			
7	BCCT 405	Basic Patient care	20	30			50
8	BCCT 406	Basic cardiac Evaluation	20	30			50
9	BCCT 407	Basics of Medical Disorders	20	30			50
10s	BCCT408	Fundamentals of Computer Science	20	30			50

FIFTH SEMESTRE

THEORY

S.No	SUBJECT CODE	SUBJECTS	THEORY EXAM		TOTAL	CERDITS
			INTERNAL ASESSMENT(C/P/A)	EXTERNAL ASSESSMENT		
1	BCCT501	Cardiac Evaluation	(35+15) 50	50	100	4
2	BCCT502	Basic Cardiac Evaluation And Therapies Part 1	(35+15) 50	50	100	4
3	BCCT503	Coronary Angiography	(35+15) 50	50	100	4
4	BCCT504	Research & Bio Statistics	(35+15) 50	50	100	4

PRACTICAL

S.No	SUBJECT CODE	SUBJECTS	PRACTICAL EXAM		VIVA	RECOR	TOTA
			EXPERIM	SPOTTE			

			ENTS	R	D	L
7	BCCT 505	Cardiac Evaluation	20	30		50
8	BCCT 506	Basic Cardiac Evacuation And Therapies Part I	20	30		50
9	BCCT507	Coronary Angiography	20	30		50

SIXTH SEMESTRE

THEORY

S.No	SUBJECT CODE	SUBJECTS	THEORY EXAM		TOTAL	CERDITS
			INTERNAL ASESSMENT(C/P/A)	EXTERNAL ASSESSMENT		
1	BCCT601	Basic Cardiac Evaluation And Therapies Part II	(35+15) 50	50	100	4
2	BCCT602	Cardiac Care Technology Clinical	(35+15) 50	50	100	4
3	BCCT603	Cardiac Care Technology Applied	(35+15) 50	50	100	4
4	BCCT604	Basic Intensive Care	(35+15) 50	50	100	4

ACTICAL

S.No	SUBJECT CODE	SUBJECTS	PRACTICAL EXAM		VIVA	RECORD	TOTAL
			EXPERIMENTS	SPOTTER			
7	BCCT 605	Basic cardiac evaluation and therapies part 2	20	30			50
8	BCCT 606	Cardiac care technology clinical	20	30			50
9	BCCT607	Cardiac care technology applied	20	30			50
10	BCCT608	Basic intensive care	20	30			50

FOURTH YEAR

S.No	SUBJECT CODE	SUBJECT	TOTAL MARK
01	BCCT 701	In the fourth semester, the students will be posted to train in a hospital or diagnosis center sand to carry out project work simultaneously. It is a training program for developing the candidate as a professional in the field. The training posting report as well	800

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		as project work must be submitted with duly signed by the HOD of the B.Sc Cardiac care Technology Department to the academic section of university or college as the part of the completion of the course.	
02	BCCT 702	Comprehensive academic and general viva voce	200

B.Sc. Cardiac Care Technology
Semester I Paper 1-
[BCCT-101]: ANATOMY [INCLUDING HISTOLOGY]

S.No.	Topics To Be Covered
Chapter 1	Introduction: human body as a whole Definition of anatomy and its subdivisions Anatomical nomenclature and terminology (planes &positions) Surface Anatomy of main structures and vessels
Chapter 2	Applied anatomy& Joints Musculoskeletal system Connective tissue & its modification, tendons, membranes, special connective tissue. Bone structure, blood supply, growth, ossification, and classification. Muscle classification, structure and functional aspect. Joints classification, structures of joints, movements, range, limiting factors, stability, blood supply Nerve supply, dislocations and applied anatomy
Chapter 3	Upper extremity Bony architecture, Joints – structure, range of movement, Muscles – origin, insertion, actions, nerve supply Major nerves – course, branches and implications of nerve injuries Development of limb bones, muscles and anomalies Radiographic identification of bone and joints Applied anatomy
Chapter 4	Lower extremity Bony architecture Joints – structure, range of movement Muscles – origin, insertion, actions, nerve supply Major nerves – course, branches and implications of nerve injuries Development of limb bones, muscles and anomalies Radiographic identification of bone and joints Applied anatomy

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Mewar University

MSc. Medical Lab Technology (MMLT)

Eligibility : BSc. In MLT, Medical Microbiology, Microbiology, Biochemistry or Equivalent
Programme Duration : 2 Years

M. SC. – MLT I SEMESTER

S.No.	Code-M	COURSE NAME	Credits	Assignment/ Lab Record	End term Exam Part - I	End term Exam Part - II	Total Marks
1	MMLT 101	Clinical Biochemistry	4	10	30	60	100
2	MMLT 102	Human physiology	4	10	30	60	100
3	MMLT 103	Immunology and Transplantation technology	4	10	30	60	100
4	MMLT 104	Medical Microbiology	4	10	30	60	100
5	MMLT 105	Clinical Haematology and Blood Banking	4	10	30	60	100
6	MMLT 106	Clinical Biochemistry and physiology practical	2	10	10	30	50
7	MMLT 107	Clinical Haematology and Blood banking practical	2	10	10	30	50
8	MMLT 108	Immunology and Medical Microbiology practical	2	10	10	30	50
		Total	26	80	180	390	650

M. SC. – MLT II SEMESTER

S. No.	Code-M	COURSE NAME	Credits	Assignment/ Lab Record	End term Exam Part - I	End term Exam Part - II	Total Marks
1	MMLT 2 01	Diagnostic Biochemistry	4	10	30	60	100
2	MMLT 202	Histopathology & Cytology	4	10	30	60	100
3	MMLT 203	Cell Biology & Cytogenetic	4	10	30	60	100
4	MMLT 204	Clinical Microbiology and Immunohaemeatology	4	10	30	60	100
5	MMLT 205	Human Genetics and genome	4	10	30	60	100
6	MMLT 206	Diagnostic Biochemistry and histopathology Practical	2	10	10	30	50
7	MMLT 207	Cell Biology and Genetics Practical	2	10	10	30	50
8	MMLT 208	Clinical Microbiology and Immunohaemeatology PRACTICAL	2	10	10	30	50
		Total	26	80	180	390	650

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M. SC. – MLT (III SEMESTER)							
S.No.	Code-M	COURSE NAME	Credits	Assignment/ Lab Record	End term Exam Part - I	End term Exam Part - II	Total Marks
1	MMLT301	Advances in Medical laboratory technology	4	10	30	60	100
2	MMLT 302	Diagnostic Enzymology and endocrinology	4	10	30	60	100
3	MMLT 303	CLINICAL HEMATOLOGY	4	10	30	60	100
4	MMLT 304	CLINICAL MICROBIOLOGY	4	10	30	60	100
5	MMLT305	Practical work	4	20		80	100
6	MMLT 304	Health Center Visit	4				100
		Total	24	60	120	320	600

M. SC. – MLT IV SEMESTER

S.n.	CODE	COURSE NAME	CREDIT	Project report	External Examination/viva-voce		Total
1	MMLT401	Comprehsive academic and general viva voce	4		-	100	100
2	MMLT402	Projects	16	150	-	250	400

Total Marks :500

- The project will based upon the research and actual bench work.