

UNIVERSITY
GWALIOR • MP • INDIA

“CELEBRATING DREAMS”

SCHOOL OF ENGINEERING & TECHNOLOGY



UNIVERSITY
GWALIOR • MP • INDIA

“ CELEBRATING DREAMS ”

DEPARTMENT OF CIVIL ENGINEERING



Department of Civil Engineering

Minutes of BOS Meeting

In order to review the scheme of B. Tech. Civil Engineering, a meeting of BOS was conducted in online mode on 29th of May 2021 due to COVID-19 pandemic. This meeting is in continuation of BOS meeting previously held on 24th of September 2020.

The following members were present in the meeting:

Sr. No.	Name	Designation
1	Dr. Ranjeet Singh Tomar	Dean
2	Dr. Mukesh Kumar Pandey	Chairman
3	Mr. Sohit Agrawal	Member
4	Mr. Aditya Sharma	Member
5	Mr. Deepak Rastogi	Expert
6	Dr. Manish Sharma	Invitee
7	Er. Abhay Agrawal	Special Invitee
8	Mr. Pushpak Sahu	Alumni
9	Dr. Sanjay Jain	Invitee
10	Dr. Dinesh Sing Tomar	Invitee
11	Mr. Keshav Kansana	Invitee

Following decisions were taken after discussion:

1. Approval of minutes of the last BOS meeting held on 24th September, 2020.
2. The scheme of B. Tech. Civil Engineering II semester, IV semester, VI semester, VIII semester for batch of 2021-25 have been approved
3. Program Electives are introduced in VI Semester
4. Based on suggestions given by the members, it is resolved to approve the syllabi with the following modification
 - In CEL 0101 new topic added in Unit-III, topic is Different types of IS codes and its provision.
 - In II semester some new topics are added in CEL 0233 .Added topics are Adhesives:- Introduction, Natural Adhesives, Thermoplastic Adhesives, Thermosetting Adhesives & Plastics, Epoxide Resins, Rubber Adhesive. Ceramics:- Manufacturing , properties &Uses, D.P.C.:- Asphalt, Bitumen, Synthetic

- In CEL0303 few new topics introduced in unit-2 these are the new topic - Admixtures - Additives and admixtures, types, necessity and benefit Mineral admixture - Fly ash, silica fume, blast furnace slag, and other pozzolanic materials. Chemical admixtures - Accelerator, retarder, water reducing elements, plasticizer and super-plasticizer, their functions and dosage.
- In CEL0313 some new topics are added, these topic are in unit I patterns of highway, in Unit II - vertical curves, in unit III- bituminous concrete specification, in unit IV- quality control of roads and In Unit V- physical and mental factors.
- In semester IV some new topics are introduced in CEL 0406. Introduced topics are in Unit-1 Floating bodies and submerged body & in unit-2 Flow net and utility, in Unit -III Mouth pieces. & in Unit-IV Major and Minor head losses in pipes.
- In 4th semester in CEL0407 some topics are introduced topics are in one unit-1 profile leveling, in unit-II latitude and departure, in unit-III direct reading tachometers, in V unit precise traversing.
- In 4th semester CEL0408 Some topics were changed by new topics. Topic classification system based on particle sized was changed by Grain size distribution by sieve and hydrometer analysis, Relative density.
- In semester 4th in CEL0409 some new topics are added. These new topics are in unit-II Influence lines for member forces in pin jointed trusses & arches and in unit IV Analysis of Indeterminate Structures: Statistical and kinematic indeterminacy, stability of structures.
- In semester 4th in CEL0432 Detailing of all designs were added in all the units.
- In semester V in CEL0510 new topic added in Unit-II in Water Hammer, transmission of power, Hardy Cross Method.
- In semester V in CEL0514 in unit-II topic plastic analysis of beams and frames replaced by Plastic Analysis: Plastic modulus, shear factor, plastic moment of resistance. Load factor, Plastic analysis of continuous beam and simple rectangular portals, in Unit-IV topics -Types of skeletal structures, Internal forces and deformations. Introduction and applications of stiffness method to analyze beams. Trusses and plane frames by system approach Introduction and applications of Flexibility method to analyze beams, Trusses and plane frames by system approach are introduced.
- In semester VI in Unit-II retaining wall with surcharge design is added, in unit-II estimating of culverts, In unit -III preparation for rates of important items of work, in unit V-dual rates interest added.
- In VI semester Environmental Engineering CEL0634 is added as new course. (See Annexure 2)
- In semester VII CEL0725 in unit-I modern management tecr, in unit-II pile driving, in unit-III arbitration, in unit-IV running bills, were added.
- In VII semester CEL0731 is introduced as a new course. (See Annexure 2)

The Board of Studies recommended above discussed points further for approval by Academic Council of the University.



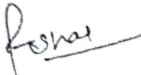
Dr. Ranjeet Singh Tomar
Dean



Dr. Manish Sharma
Invitee



Dr. Mukesh Pandey
Chairman



Mr. Aditya Sharma
Member



Mr. Sohit Agrawal
Member



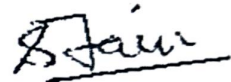
Mr. Deepak Rastogi
Expert



Mr. Pushpak Sahu
Alumni



Er. Abhay Agrawal
Special Invitee



Dr. Sanjay Jain
Invitee



Mr. Keshav Kansana
Invitee



Dr. Dinesh Singh Tomar
Invitee

ANNEXURE I

Course Code	Course Name	Semester	Number of topics	Change in the number of topics	Change Percentage	Remarks
CEL0101[T]	Introduction to Structural Engineering	I	52	3	5.77	
CEL0233[T]	Structural Materials	II	45	13	28.89	
CEL0302[T]	Strength of Materials	III	43	0	0	
CEL0303[T]	Concrete Technology	III	54	16	29.63	
CEL0313[T]	Highway and Traffic Engineering	III	58	5	8.63	
CEL0331[T]	Elementary design of structures (RCC)	III	34	0	0	
CEL0406[T]	Fluid Mechanics	IV	54	4	7.41	
CEL0407[T]	Fundamentals of Surveying	IV	64	5	7.81	
CEL0408[T]	Fundamentals of Geotechnical Engineering	IV	60	2	3.33	
CEL0409[T]	Basic Methods of Structural Analysis	IV	47	8	17.02	
CEL0432[T]	Elementary Design of Structures (Steel)	V	25	15	60	
CEL0510[T]	Hydraulics & fluid machine	V	80	4	5	
CEL0511[T]	Advanced Surveying	V	48	2	4.17	
CEL0512[T]	Fundamentals of Structural design(RCC)	V	30	0	0	
CEL0514[T]	Advanced Methods of Structural Analysis	V	24	18	75	
CEL0515[T]	Advanced Geotech Engineering	V	69	0	0	
CEL0617[T]	Basic of Structural Design (Steel)	VI	34	4	11.77	
CEL0619[T]	Advanced Structural Design (RCC)	VI	35	2	5.72	
CEL0621[T]	Quantity Surveying & Costing	VI	36	4	11.11	
CEL0634[T]	Environmental Engineering	VI	62	62	100	Newly Added
CEE0601[T]	Water Resource & Irrigation Engineering	VI	42	42	100	Newly Added
CEE0602[T]	Geo-synthetics and Reinforced Soil Structures	VI	42	42	100	Newly Added
CEE0603[T]	Introduction to Finite Element Analysis	VI	44	44	100	Newly Added
CEL0723[T]	Advanced Structural Design(Steel)	VII	42	0	0	
CEL0734[T]	Railway Engineering	VII	46	46	100	Newly Added
CEL0725[T]	Introduction to Construction Planning and Management	VII	42	5	11.91	
CEE0701[T]	MATRIX ANALYSIS OF STRUCTURES	VII	42	0	0	
CEE0702[T]	Advanced Foundation Engineering	VII	51	0	0	
CEE0703[T]	Pavement Design	VII	43	0	0	
CEE0704[T]	Seismic analysis of structures	VII	50	0	0	
CEE0705[T]	Fundamentals of Remote Sensing & GIS	VII	45	0	0	
CEE0706[T]	Fluid Dynamics	VII	46	0	0	
CEE0707[T]	Wastewater Treatment and Recycling	VII	44	0	0	
CEE0708[T]	Sustainable Construction Methods	VII	48	0	0	
CEL0834[T]	Retrofitting and rehabilitation of structures	VIII	62	62	100	Newly Added
CEL0827[T]	Design of Hydraulic Structures	VIII	57	0	0	
CEE0807[T]	Plastic design of steel structure	VIII	48	0	0	
CEE0808[T]	Building Environment & Services	VIII	45	0	0	

CEE0809[T]	Design of Pre stressed Concrete Structure	VIII	45	0	0	
CEE0810[T]	Traffic Engineering	VIII	48	0	0	
CEE0811[I]	Energy Efficient and Green Building	VIII	47	0	0	
CEE0812[T]	Airport Engineering	VIII	46	0	0	
CEE0813[I]	Solid Waste Management	VIII	52	0	0	
CEE0814[I]	Urban Transportation Planning	VIII	42	0	0	

Total Percentage Change

20.30%

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Spanish

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Paula Salas

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Syllabus-2021-2022

(SOET)(BTech-CivilEngineering)

Title of the Course	Water Resource & Irrigation Engineering
Course Code	CEE0601(T)

Part A

Year	Semester	Credits	L	T	P	C
			3	2	0	5
Course Type	Theory only					
Course Category	Discipline Core					
Pre-Requisite/s	known about the soil properties	Co-Requisite/s	known about basic structure			
Course Outcomes & Bloom's Level	CO1- To remember the various concepts in theory of irrigation engg.(BL1-Remember) CO2- To understand & analyze the different irrigation engg problems.(BL2-Understand) CO3- To implement the different designing concepts of canal and well structures.(BL3-Apply) CO4- To provide experimental basis, and to enable the students to analyze the flood prediction.(BL4-Analyze) CO5- To evaluate the applications of different irrigation engg in various fields such as research & industries.(BL5-Evaluate)					
Courses Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG11(Sustainable cities and economies)			

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Part B

Modules	Contents	Pedagogy	Hours
unit I	Hydrology : Hydrological cycle, precipitation and its measurement, recording and non recording rain gauges, estimating missing rainfall data, raingauge over a drainage area, mass rainfall curves, intensity infiltration and infiltration indices, evaporation stream gauging, run off and its estimation, hydrograph analysis, unit hydrograph S curve hydrograph, synthetic unit hydrograph.	Lectures with problem based learning, experimental learning, case study, field trips	10
unit II	Floods and Ground water: Types of floods and their estimation by different methods, probability and frequency analysis, flood routing through reservoirs and channels, flood control measures, economics of flood control, confined and unconfined aquifers, aquifer properties, hydraulics of wells under steady flow conditions, infiltration galleries. Ground water recharge necessity and methods of improving ground water storage. Water logging prevention. Salt efflorescence-causes and effects. Reclamation of water logged and salt affected lands.	Lectures with problem based learning, experimental learning, case study, field trips	9
unit III	Irrigation water requirement and soil necessity, advantages and disadvantages, types and methods. Irrigation development. types and their occurrence, suitability for irrigation purposes, wilting coefficient and field capacity, optimum water supply, consumptive use and its determination. Irrigati methodssurface and subsurface, sprinkler and drip irrigation. Duty of water, factors affecting duty and methods to improve duty, suitability of water for irrigation, crops and crop seasons, principal crops and their water requirement, crop ratio and crop roation , intensity of irrigation	Lectures with problem based learning, experimental learning, case study, field trips	8
unit IV	Canal irrigation: Types of canals, alignment, design of unlined and lined canals, Kennedy's and Lacey's silt theories, typical canal sections, canal losses, linings economics. Canal falls & cross drainage works, regulators. escapes and outlets, canal transitions	Lectures with problem based learning, experimental learning, case study, field trips	10
unit V	Well irrigation: Types of wells, well construction, yield tests, specific capacity level and specific yield, hydraulic design of open wells and tube wells, methods of raising well water, characteristics of pumps and their selection, interference of wells, well losses, advantages and disadvantages of well irrigation. Rain water harvesting	Lectures with problem based learning, experimental learning, case study, field trips	8

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
I	module of canal designing by khosla theory	PBL	BL4-Analyze	3

Khandey *Sharma* *Sharma* *Fonar* *Sohit* *Chatterjee*

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
0	0	0	0	0	0

Part E

Books	Irrigation and water power engg B.c. punamia
Articles	https://muthuramanp.wordpress.com/wp-content/uploads/2020/01/ce8603-notes.pdf
References Books	Water resource and Irrigation engg by s.k. garg
MOOC Courses	https://www.mooc-list.com/tags/irrigation
Videos	https://www.youtube.com/watch?v=01ixEzcKABc

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	3	1	-	2	-	3	2	1	1	-	-	-
CO2	1	1	2	2	-	-	1	-	1	3	-	1	-	-	-
CO3	2	1	3	1	-	-	1	-	-	-	-	2	-	-	-
CO4	1	-	1	-	1	-	-	-	1	-	-	2	-	-	-
CO5	-	-	-	1	-	-	2	-	1	-	-	-	-	1	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Syllabus-2021-2022
(SOET)(BTech-CivilEngineering)

Title of the Course	Geo-synthetics and Reinforced Soil Structures
Course Code	CEE0602[T]

Part A

Year	Semester	Credits	L	T	P	C
			3	1	0	4
Course Type	Theory only					
Course Category	Discipline Electives					
Pre-Requisite/s	Co-Requisite/s					
Course Outcomes & Bloom's Level	CO1- Identify the type of Geosynthetic and their relevance(BL2-Understand) CO2- Analyze & compute different properties of Geosynthetics(BL4-Analyze) CO3- Understand the emerging trends of Geosynthetic in geotechnical applications(BL2-Understand) CO4- Design the Reinforced Earth Walls using Geosynthetic material(BL5-Evaluate) CO5- Design the Reinforced Foundation using Geosynthetic materials(BL5-Evaluate)					
Courses Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies)			

Part B

Modules	Contents	Pedagogy	Hours
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Students will use different materials for soil stabilization	PBL	BL4-Analyze	15
2	Increasing the compressive strength of soil with different fibres	PBL	BL4-Analyze	15

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Dr. Arun

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	0
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation

Part E

Books	Koerner, R.M. "Designing with Geosynthetics", Prentice Hall, New Jersey, USA, 4th edition, 1999 Jewell, R.A., "Soil Reinforcement with Geotextiles", Special Publication No. 123, CIRIA, Thomas Telford. London, UK, 1996
Articles	https://www.researchgate.net/publication/330788128_A_Study_on_Geosynthetics_Material_in_soil_Reinforcement
References Books	Geosynthetics - New Horizons, Eds. G.V. Rao, PK Banerjee, J.T. Shahu, G.V. Ramana, Asian Books Private Ltd., New Delhi, 2004
MOOC Courses	https://archive.nptel.ac.in/courses/105/106/105106052/
Videos	https://www.youtube.com/watch?v=7Im_fxGLUmk&t=1s

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	1	-	-	-	-	-	-	2	2	3	2	2
CO2	3	2	2	2	-	-	-	-	-	-	2	2	2	2	2
CO3	3	2	2	1	-	-	-	-	-	-	2	1	3	3	3
CO4	3	2	1	1	-	-	-	-	-	-	2	1	2	2	2
CO5	3	2	2	1	-	-	-	-	-	-	1	2	2	2	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Syllabus-2021-2022

(SOET)(BTech-CivilEngineering)

Title of the Course	Introduction to Finite Element Analysis
Course Code	CEE0603(T)

Part A

Year	Semester	Credits	L	T	P	C
			3	1	0	4
Course Type	Theory only					
Course Category	Discipline Electives					
Pre-Requisite/s			Co-Requisite/s			
Course Outcomes & Bloom's Level	CO1- Understand the fundamental concepts of finite element method to solve engineering problems (BL2-Understand) CO2- Formulate finite element models using appropriate element selection, development of stiffness & force matrices, and application of boundary conditions (BL3-Apply) CO3- Solve structural, thermal, and dynamic problems using the developed finite element formulations (BL4-Analyze) CO4- Demonstrate the ability to create models for structural, thermal, and fluid flow applications using commercial finite element packages (BL3-Apply) CO5- Interpret the analysis results to improve product and system design (BL4-Analyze)					
Courses Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG9 (Industry Innovation and Infrastructure) SDG11 (Sustainable cities and economies)			

Part B

Modules	Contents	Pedagogy	Hours
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Comparative study of different properties of materials	PBL	BL3-Apply	15

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Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	0
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation

Part E

Books	Rao, S.S., "The Finite Element Method in Engineering", 6/e, Butterworth-Heinemann Publisher, 2018
Articles	Reddy J.N, "An Introduction to Finite Element Method", McGraw-Hill International Education, 3/e., 2005
References Books	Chandrupatla, T.R., and Belegundu, A.D., "Introduction to Finite Element in Engineering", 4/e, Prentice Hall of India Pvt. Ltd., New Delhi, 2012
MOOC Courses	https://www.amrita.edu/course/introduction-to-finite-element-method/
Videos	https://www.youtube.com/watch?v=2iUnfPRk6Ro

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	2	2	-	-	-	-	-	-	-	3	3	1	2
CO2	3	1	2	1	-	-	-	-	-	-	-	1	3	1	1
CO3	3	1	3	1	2	-	-	-	2	-	-	1	3	2	1
CO4	3	2	2	2	2	-	-	-	2	-	-	2	3	1	1
CO5	3	3	3	3	3	-	-	-	3	-	-	3	3	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Syllabus-2021-2022
(SOET)(BTech-CivilEngineering)

Title of the Course	Environmental Engineering
Course Code	CEL0634[T]

Part A

Year	Semester	Credits	L	T	P	C
			3	1	2	6
Course Type	Embedded theory and lab					
Course Category	Discipline Core					
Pre-Requisite/s			Co-Requisite/s			
Course Outcomes & Bloom's Level	CO1- To remember the various concepts in theory of sources of water.(BL1-Remember) CO2- To understand & analyze the concept of population forecasting(BL2-Understand) CO3- To provide experimental basis, and to enable the students to analyze physical, chemical and biological impurities(BL4-Analyze) CO4- To evaluate the applications of rain water harvesting(BL5-Evaluate) CO5- To apply the understanding of water treatment(BL3-Apply)					
Courses Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment ✓	SDG (Goals)	SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG11(Sustainable cities and economies)			

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Sohit

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Part B

Modules	Contents	Pedagogy	Hours
1	Estimation of ground and surface water resources. quality of water from different sources, demand & quantity of water, fire demand, water requirement for various uses, fluctuations in demand, forecast of population.	Lectures with Presentation, Site Visit to STP	8
2	Impurities of water and their significance, water-borne diseases, physical, chemical and bacteriological analysis of water, water standards for different uses. Intake structure, conveyance of water, pipe materials, pumps - operation & pumping stations.	Lectures with Presentation, Seminar and experiments	8
3	Water Treatment methods-theory and design of sedimentation, coagulation, filtration, disinfection, aeration & water softening, modern trends in sedimentation & filtration, miscellaneous methods of treatment.	Lectures with Presentation, Site Visit to STP	8
4	Sewerage schemes and their importance, collection & conveyance of sewage, storm water quantity, fluctuation in sewage flow, flow through sewer, design of sewer, construction & maintenance of sewer, sewer appurtenances, pumps & pumping stations.	Lectures with Presentation, Seminar and experiments	8
5	Characteristics and analysis of waste water, recycles of decomposition, physical, chemical & biological parameters. Oxygen demand i.e. BOD & COD, TOC, TOD, Th OD, Relative Stability, population equivalent, instrumentation involved in analysis, natural methods of waste water disposal i.e. by land treatment & by dilution, self purification capacity of stream, Oxygen sag analysis.	Lectures with Presentation, Seminar and experiments	8

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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Physical examination of Sewage/Water: a. Total Solid b. Total dissolve solid c. Total suspended solid d. pH, color and odor	Experiments	BL4-Analyze	8
2	Chemical estimation of Sewage/Water and soil a. Determination of Chlorides b. Estimation of Chemical oxygen Demand	Experiments	BL4-Analyze	4
3	Microbial examination of Sewage/Water a. Confirmation of coliforms b. Biological oxygen demand	Experiments	BL4-Analyze	4
4	Determination of soil microbial biomass carbon	Experiments	BL4-Analyze	2
5	Examination of different bacteria, algae, fungi, plants and animals by microscopic or morphological examination	Experiments	BL4-Analyze	2

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	0
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	20	60	0

Part E

Books	S.K.Garg, Environmental engineering volume 1 and 2 Khanna publisher B.C.Punamia Environmental engineering volume 1 and 2 Laxmi Publication
Articles	https://sciendo.com/journal/CEE
References Books	Viesman, Hammer and Chadik Water supply and pollution control PHI Publication
MOOC Courses	https://nptel.ac.in/courses/103107084
Videos	http://www.digimat.in/nptel/courses/video/105107176/L01.html



Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	1	-	-	2	-	-	-	1	2	2	2	1
CO2	2	2	2	2	-	-	2	-	-	-	1	3	2	2	2
CO3	2	2	1	2	-	-	3	-	-	-	2	2	2	3	3
CO4	2	3	1	2	-	-	2	-	-	-	1	2	2	3	2
CO5	2	2	1	2	-	-	3	-	-	-	1	3	2	3	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Fonar *Sohit* *Distess*

Syllabus-2021-2022
(SOET)(BTech-CivilEngineering)

Title of the Course	Railway Engineering
Course Code	CEL0731[T]

Part A

Year		Semester	Credits	L	T	P	C
				3	0	2	5
Course Type	Embedded theory and lab						
Course Category	Discipline Core						
Pre-Requisite/s	have the knowledge of chemistry and its basic experiments and theory			Co-Requisite/s			
Course Outcomes & Bloom's Level	CO1- CO1: To remember the various concepts in theory of sources of water.(BL1-Remember) CO2- CO2: To understand & analyze the concept of population forecasting(BL2-Understand) CO3- CO3: To implement the different standards of potable water(BL2-Understand) CO4- CO4: To provide experimental basis, and to enable the students to analyze physical,chemical and biological impurities(BL4-Analyze) CO5- CO5: To evaluate the applications of rain water harvesting(BL5-Evaluate) CO6- CO6: To apply the understanding of water treatment(BL3-Apply)						
Courses Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X		SDG (Goals)				

Sanjay

Keandey

Pranish

Fonar

Sohit

Arshi

Part B

Modules	Contents	Pedagogy	Hours
1	History of Indian Railways, Importance of Railways For Environment Recent Developments. Role of Civil Engineers In Construction And Maintenance, Components of Railway Track, Definition of Railway Gauges, Types, Uniformity of Gauge. Different Gauges on Indian Railways, Cross-Section of Permanent Way as Per IRS Problems Caused By Change of Gauge. Basic Requirements and selection of An Ideal Alignment Functions and Types Of Rails Standard Rail Sections, Causes and Effects Of Creep, Measures To Reduce Creep. Fittings and Fastening and their requirements . Forces Acting On Track, Coning Of Wheels	lecture with experimental learning, interactive workshops, field trips	8
2	Functions & Requirements of sleepers Types and Spacing of Sleepers, Method Of Fixing Rails With Pre-stressed Concrete And Wooden Sleepers, Function and Specifications of Track Ballast Necessity and Details of geometric design of track Design of track Gradients, Grade compensation on curves. Curves and Super elevation.	lecture with experimental learning, interactive workshops, field trips	8
3	Resistance to-friction, wave action, speed, track irregularity, wind, Resistance to gradient, curvature, starting and accelerating. Stress in rails, sleepers, ballast and formation Necessity of Points & Crossing Track Layouts And Sketches of Turn Out, Types Of Crossing Types of Track Turnouts	lecture with experimental learning, interactive workshops, field trips	8
4	Purposes. Facilities Required at Railway Stations. Requirements Of Station Yard, Classification Of Railway Stations, Types Of Yards	lecture with experimental learning, interactive workshops, field trips	6
5	Objectives of signaling Classification of signals Types and working of Interlocking Modern signal system	lecture with experimental learning, interactive workshops, field trips	6
6	Introduction of Maintenance Programme. Monsoon, Pre-Monsoon & Post- Monsoon Maintenance. Causes For Maintenance, Routine Maintenance Tools For Railway Track Maintenance & Their Functions. Surface Defects And Their Remedial Measures	lecture with experimental learning, interactive workshops, field trips	6

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Determination of pH and Turbidity	Experiments	BL4-Analyze	3
2	Determination of Alkalinity/Acidity.	Experiments	BL2-Understand	3
3	Determination of Chlorides.	Experiments	BL4-Analyze	3
4	Determination of B.O.D	Experiments	BL4-Analyze	3
5	Determination of C.O.D	Experiments	BL2-Understand	3

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Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	20
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
0	0	0	0	0	0

Part E

Books	S.K.Garg, Environmental engineering volume 1 and 2, Khanna publisher
Articles	https://easyengineering.net/sewage-waste-disposal-and-air-pollution-engineering-by-santosh-kumar-garg/
References Books	B.C.Punamia, Environmental engineering volume 1 and 2, Laxmi Publication
MOOC Courses	https://archive.nptel.ac.in/courses/127/105/127105018/
Videos	https://ia902309.us.archive.org/6/items/eco-8/ECO8.pdf https://ia902309.us.archive.org/6/items/eco-8/ECO8.pdf

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	2	2	2	2	2	3	3	1	2	2	3	3	1
CO2	1	2	2	2	2	2	1	2	2	3	1	3	2	3	3
CO3	1	1	-	-	-	-	-	-	-	2	3	2	2	1	2
CO4	1	2	2	3	2	3	1	3	3	3	2	2	3	2	1
CO5	1	2	2	3	2	2	1	2	2	1	1	2	2	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Syllabus-2021-2022
(SOET)(BTech-CivilEngineering)

Title of the Course	Retrofitting and rehabilitation of structures
Course Code	CEL0831[T]

Part A

Year	Semester	Credits	L	T	P	C
			3	1	2	6
Course Type						
Course Category	Discipline Core					
Pre-Requisite/s	Environmental Engineering and Basics of Waste water and hydraulics	Co-Requisite/s				
Course Outcomes & Bloom's Level	CO1- Students will be remember the different Pollutants responsible for Pollution(BL1-Remember) CO2- To understand different parameters like BOD and COD(BL2-Understand) CO3- Students will be able to apply the knowledge of treatment of waste water(BL3-Apply) CO4- To analyze different pollutants responsible for water pollution(BL4-Analyze) CO5- To evaluate the type of treatment required for sludge and solid waste(BL5-Evaluate) CO6- To Create Water Treatment system and solve Rural Sanitization Problems(BL6-Create)					
Courses Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment ✓	SDG (Goals)				

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Part B

Modules	Contents	Pedagogy	Hours
1	Sewerage schemes and their importance, collection & conveyance of sewage,, fluctuation in sewage flow, flow through sewer, design of sewer, construction & maintenance of sewer, sewer appurtenances, pumps & pumping stations.	Lectures with problem based learning, experimental learning, case study, field trips	10
2	Characteristics and analysis of waste wate, rcycles of decomposition, physical, chemical & biological parameters. Oxygen demand i.e. BOD & COD, TOC, TOD, Th OD, population equivalent, instrumentation involved in analysis, natural methods of waste water disposal i.e. by land treatment & by dilution, self purification capacity of stream, .	Lectures with problem based learning, experimental learning, case study, field trips	8
3	Unit operations for waste water treatment, preliminary treatment such as screens, grit chamber, , sedimentation and chemical clarification, role of micro-organism in biological treatment, .	Lectures with problem based learning, experimental learning, case study, field trips	8
4	Methods of Biological Treatment (Theory & Design) - Activated Sludge process, , aerated lagoon, anaerobic lagoons, septic tank & imhoff tank, sources & treatment of sludge, sludge thickening and digestion sludge drying beds, .	Lectures with problem based learning, experimental learning, case study, field trips	8
5	Advanced Waste Water treatment - Diatomaceous earth filters, ultrafiltration, Nitrogen removal, Physico chemical waste water treatment, Solid waste disposal - classification, composition, collection, & disposal methods. Rural sanitation - collection & disposal of refuse, .	Lectures with problem based learning, experimental learning, case study, field trips	10

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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	BOD Test on Sewage water	Experiments	BL3-Apply	2
2	COD Test on Sewage water	Experiments	BL3-Apply	2
3	DO Test on Sewage water	Experiments	BL3-Apply	2
4	Incubation for E-coli	Experiments	BL2-Understand	2
5	Incubation for B-coli	Experiments	BL2-Understand	2

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	0	40	20	60	

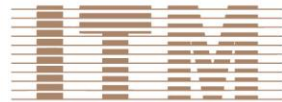
Part E

Books	S.K.Garg, Environmental engineering volume 1 and 2, Khanna publisher
Articles	https://easyengineering.net/sewage-waste-disposal-and-air-pollution-engineering-by-santosh-kumar-garg/
References Books	B.C.Punamia, Environmental engineering volume 1 and 2, Laxmi Publication
MOOC Courses	https://archive.nptel.ac.in/courses/127/105/127105018/
Videos	https://ia902309.us.archive.org/6/items/eco-8/ECO8.pdf

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	-	3	3	-	-	3	-	2
CO2	2	-	2	2	1	2	-	-	3	3	-	-	3	2	2
CO3	-	-	2	1	1	-	-	-	2	1	-	-	3	2	2
CO4	-	1	2	3	1	-	-	-	-	-	-	-	3	-	2
CO5	-	1	1	2	1	-	-	-	-	-	-	-	3	-	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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UNIVERSITY
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“ CELEBRATING DREAMS ”

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Department of Electronics & Communication Engineering
ITM University, Gwalior
Session 2021-2022

NOTICE

Date: May 17, 2021

Members of Board of Studies are being informed regarding the BOS meeting scheduled with the following agenda:

Agenda:

- a. Approval of changes in B. Tech. Electronics & Communication Engineering by academic council.
- b. Approval of B. Tech. Scheme of Examination for the year 2021-2022
- c. Approval of mandatory modules for elective courses.
- d. Review of POs, PSOs, PEOs and COs structured by the School of Engineering & Technology (SOET), ITM University, Gwalior Madhya Pradesh.

Sr. No.	Name	Designation
1.	Prof. (Dr.) Ranjeet Singh Tomar	HOD & Chairman BOS
2.	Prof. (Dr.) G. S. Tomar	External Expert
3.	Dr. Manish Sharma	Invitee Member
4.	Dr. Mukesh Pandey	Invitee Member
5.	Dr. Shyam Akashe	Member
6.	Dr. Sadhana Mishra	Member
7.	Mr. Mayank Sharma	Member
8.	Mr. Bhupendra Dhakad	Member
9.	Mr. Shailendra Singh Ojha	Member

The meeting will be held in Virtual Mode on June 01, 2021 from 12:30 PM Onwards

Cc: VC Office
Registrar Office
Dean Academic Office


Prof. (Dr.) Ranjeet Singh Tomar
Head of Department
Electronics & Communication Engg.
ITM University
Gwalior (M.P.)
HOD ECE




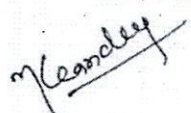


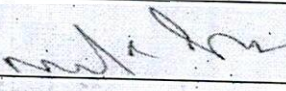
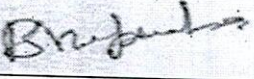
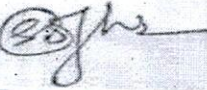
**Department of Electronics & Communication Engineering, School of
 Engineering & Technology (SOET) ITM University, Gwalior
 Session 2021-2022**

Dated: 01/06/2021

Minutes of BOS Meeting

In order to review the schemes of B. Tech. Electronics & Communication Engineering and M. Tech. Communication Systems and VLSI Design a meeting of BOS was conducted in an online mode on 1st of June 2021 due to COVID-19 pandemic. This meeting is in continuation of BOS meeting previously held on 10th of May 2020.

The following members were present in the meeting:

Sr. No.	Name	Designation	Digital Signature
1	Dr. Ranjeet Singh Tomar	HOD & Chairman	
3	Dr. G. S. Tomar	Expert	
4	Dr. Manish Sharma	Invitee Member	
5	Dr. Mukesh Pandey	Invitee Member	
5	Dr. Shyam Akashe	Member	
6	Dr. Sadhana Mishra	Member	
7	Mr. Mayank Sharma	Member	
8.	Mr. Bhupendra Dhakad	Member	
9.	Mr. Shailendra Singh Ojha	Member	

Following decisions were taken after discussion:

1. Approval of minutes of the last BOS meeting held on 10th May, 2020.
2. The schemes of



- B. Tech. Electronics & Communication Engineering VII & VIII Semester for batch of 2018 has been approved.
- B. Tech Electronics & Communication Engineering V & VI semester for batch of 2019, III & IV semester for batch of 2020 and I & II for batch 2021 have been approved.
- M. Tech. Communication Systems and VLSI Design, I & II semester of batch 2020 have been approved.
- Revision in Software Lab I ECP0502 of credit 2 is carried out to be 50% for V semester.
- ECL0303 Semiconductor Devices revisions are carried out to be 53%.
- The Board of Studies recommended the discussed points for further approval by the Academic Council of the University.

Annexure 1 is containing the details of revisions carried out in the courses.

Prof.(DR.) Ranjeet Singh Tomar
Head of Department
Electronics & Communication Engg.
ITM University
Gwalior (M.P.)
HOD & Chairman BOS

Annexure 1: Details of revisions carried out in the courses ECE syllabus revision for the year 2021-22

Scheme 2020-21 and 2021-22



STUDY AND EVALUATION SCHEME (2020-2021) (SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)



STUDY AND EVALUATION SCHEME (2021-2022) (SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)

Programme:BTech(Electronics_and_Communication) Semester:3rd

S.No.	Course Code	Course Name	Maximum Marks Allotted						Credits Allotted			Total Credits	
			Theory			Practical			Total Marks	L	T		P
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva					
1	ECL0303(T)	Semiconductor Devices	40	30	30	0	0	0	100	3	1	0	4
2	ECL0304(T)	Architecturing of Smart IoT Devices	40	30	30	0	0	0	100	3	0	0	3
3	ECL0306(T)	Digital Electronics	40	30	30	0	0	0	100	2	1	0	3
4	ECL0307(T)	Network Analysis & Synthesis	40	30	30	0	0	0	100	3	1	0	4
5	MAL0306(T)	Engineering Mathematics	40	30	30	0	0	0	100	3	1	0	4
6	CSP0303(P)	Object Oriented Programming with Java	0	0	0	40	30	30	100	0	0	2	2
7	ECD0301(P)	Evaluation of Industrial Training-I	0	0	0	40	30	30	100	0	0	1	1
8	ECL0303(P)	Semiconductor Devices	0	0	0	40	30	30	100	0	0	1	1
9	ECL0304(P)	Architecturing of Smart IoT Devices	0	0	0	40	30	30	100	0	0	1	1
10	ECL0306(P)	Digital Electronics	0	0	0	40	30	30	100	0	0	1	1
11	ECL0307(P)	Network Analysis & Synthesis	0	0	0	40	30	30	100	0	0	1	1
Total Credits											26		

Programme:BTech(Electronics_and_Communication) Semester:3rd

S.No.	Course Code	Course Name	Maximum Marks Allotted						Credits Allotted			Total Credits	
			Theory			Practical			Total Marks	L	T		P
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva					
1	ECL0303(T)	Semiconductor Devices	40	30	30	0	0	0	100	3	1	0	4
2	ECL0304(T)	Architecturing of Smart IoT Devices	40	30	30	0	0	0	100	3	0	0	3
3	ECL0306(T)	Digital Electronics	40	30	30	0	0	0	100	2	1	0	3
4	ECL0307(T)	Network Analysis & Synthesis	40	30	30	0	0	0	100	3	1	0	4
5	MAL0306(T)	Engineering Mathematics	40	30	30	0	0	0	100	3	1	0	4
6	CSP0303(P)	Object Oriented Programming with Java	0	0	0	40	30	30	100	0	0	2	2
7	ECD0301(P)	Evaluation of Industrial Training-I	0	0	0	40	30	30	100	0	0	1	1
8	ECL0303(P)	Semiconductor Devices	0	0	0	40	30	30	100	0	0	1	1
9	ECL0304(P)	Architecturing of Smart IoT Devices	0	0	0	40	30	30	100	0	0	1	1
10	ECL0306(P)	Digital Electronics	0	0	0	40	30	30	100	0	0	1	1
11	ECL0307(P)	Network Analysis & Synthesis	0	0	0	40	30	30	100	0	0	1	1
Total Credits											26		



STUDY AND EVALUATION SCHEME (2020-2021) (SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)



STUDY AND EVALUATION SCHEME (2021-2022) (SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)

Programme:BTech(Electronics_and_Communication) Semester:5th

S.No.	Course Code	Course Name	Maximum Marks Allotted						Credits Allotted			Total Credits	
			Theory			Practical			Total Marks	L	T		P
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva					
1	ECL0512(T)	Electromagnetic Theory	40	30	30	0	0	0	100	3	1	0	4
2	ECL0513(T)	Digital Communication	40	30	30	0	0	0	100	3	1	0	4
3	ECL0514(T)	Control System	40	30	30	0	0	0	100	2	1	0	3
4	ECL0515(T)	Advanced Microprocessors and Interfacing	40	30	30	0	0	0	100	3	1	0	4
5	ECL0519(T)	Digital Signal Processing	40	30	30	0	0	0	100	3	1	0	4
6	ECD0502(P)	Evaluation of Industrial Training-II	0	0	0	40	30	30	100	0	0	2	2
7	ECL0513(P)	Digital Communication	0	0	0	40	30	30	100	0	0	1	1
8	ECL0515(P)	Advanced Microprocessors and Interfacing	0	0	0	40	30	30	100	0	0	1	1
9	ECP0502(P)	Software Lab-I	0	0	0	40	30	30	100	0	0	2	2
Total Credits											26		

Programme:BTech(Electronics_and_Communication) Semester:5th

S.No.	Course Code	Course Name	Maximum Marks Allotted						Credits Allotted			Total Credits	
			Theory			Practical			Total Marks	L	T		P
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva					
1	ECL0512(T)	Electromagnetic Theory	40	30	30	0	0	0	100	3	1	0	4
2	ECL0513(T)	Digital Communication	40	30	30	0	0	0	100	3	1	0	4
3	ECL0514(T)	Control System	40	30	30	0	0	0	100	2	1	0	3
4	ECL0515(T)	Advanced Microprocessors and Interfacing	40	30	30	0	0	0	100	3	1	0	4
5	ECL0519(T)	Digital Signal Processing	40	30	30	0	0	0	100	2	1	0	3
6	ECD0502(P)	Evaluation of Industrial Training-II	0	0	0	40	30	30	100	0	0	2	2
7	ECL0513(P)	Digital Communication	0	0	0	40	30	30	100	0	0	1	1
8	ECL0515(P)	Advanced Microprocessors and Interfacing	0	0	0	40	30	30	100	0	0	1	1
9	ECL0519(P)	Digital Signal Processing	0	0	0	40	30	30	100	0	0	1	1
10	ECP0502(P)	Software Lab-I	0	0	0	40	30	30	100	0	0	2	2
Total Credits											26		

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Previous Syllabus: 2020-21 ECL0303 Semiconductor Devices

Part B

Modules	Contents	Pedagogy	Hours
1	Review of device structure operation and V-I characteristics, BJT circuits at DC, BJT as amplifier and switch, biasing in BJT amplifier circuit, small-signal operation, single stage BJT amplifier, BJT internal capacitances and high-frequency response, frequency response of CE amplifier.	Lecture Method/ Case Study/ Video/ Group Discussion	10
2	MOSFET: Review of device structure operation and V-I characteristics Circuits at DC, MOSFET as Amplifier and switch, Biasing in MOS Amplifier circuits, small-signal operation, single stage MOS amplifier, MOSFET internal capacitances and high frequency response.	lecture method/Project based learning	10
3	Differential Amplifier: MOS differential pair, small signal operation of the MOS differential pair, BJT differential pair, other non-ideal characteristics of the Differential amplifier (DA).	lecture method/Project based learning	10
4	Feedback: The general feedback structure properties of negative feedback, four basic feedback topologies, the series shunt feedback amplifier, the series-series feedback amplifier, the shunt-shunt and shunt series feedback amplifier. Oscillator: Basic principles of sinusoidal Oscillators, op-amp RC Oscillator circuit, LC Oscillator.	lecture method/Project based learning	11
5	Direct & indirect, Semiconductor, Degenerate Semiconductor, LED, Photodiode, Tunnel diode, Silicon controlled Rectifier (SCR), Bilateral Device: DIAC, TRIAC.	lecture method/Project based learning	10

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Revised Syllabus-2021-22 ECL-0303-Semiconductor Devices



Syllabus-2021-2022

(SOET)(BTech-Electronics_and_Communication)

Title of the Course	Semiconductor Devices
Course Code	ECL0303[T]

Part A

Year	2nd	Semester	3rd	Credits	L	T	P	C	
					2	1	1	4	
Course Type	Embedded theory and lab								
Course Category	Discipline Core								
Pre-Requisite/s				Co-Requisite/s					
Course Outcomes & Bloom's Level	CO1- To become familiar with various types of diodes like the Schottky diode, tunnel diode, PIN diode. (BL1-Remember) CO2- To understand the operation of various electronic devices like BJT, JFET, and MOSFET. (BL2-Understand) CO3- To apply the concept of amplifiers to the various types of feedback amplifiers. (BL3-Apply) CO4- To analyze various electronics devices and their frequency response. (BL4-Analyze) CO5- To design various types of oscillators and feedback amplifiers. (BL5-Evaluate)								
Course Elements	Skill Development ✓ Entrepreneurship X Employability ✓ Professional Ethics X Gender X Human Values X Environment X		SDG (Goals)	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education) SDG8(Decent work and economic growth)					

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Part B

Modules	Contents	Pedagogy	Hours
1	BJT: Review of device structure operation and V-I characteristics, BJT circuits at DC, BJT as amplifier and switch, biasing in BJT amplifier circuit, h-parameter model and small-signal operation, single stage BJT amplifier, BJT internal capacitances and high-frequency response, frequency response of CE amplifier.	Lecture Method/ Case Study/ Video/ Group Discussion	10
2	FET: Operation of n-channel and p-channel JFET and MOSFET, comparison of BJT, JFET and MOSFET, MOSFET as Amplifier and switch, Biasing in MOS Amplifier circuits, small-signal operation, single stage MOS amplifier, MOSFET internal capacitances and high frequency response.	lecture method/Project based learning	10
3	Differential Amplifier: Four basic configurations of differential amplifiers, MOS differential pair, small signal operation of the MOS differential pair, BJT differential pair, other non-ideal characteristics of the Differential amplifier (DA).	lecture method/Project based learning	10
4	Feedback: The general feedback structure properties of negative feedback, four basic feedback topologies, the series shunt feedback amplifier, the series-series feedback amplifier, the shunt-shunt and shunt series feedback amplifier. Oscillator: Basic principles of sinusoidal Oscillators, op-amp RC Oscillator circuit, LC Oscillator, Hartley oscillator and Colpitt oscillator.	lecture method/Project based learning	11
5	Special Device: Use of PN junction diode as clipper, principle of operation of Light Emitting Diode, Schottky diode, advantages of Schottky diodes over conventional pn-junction diode, PIN diode	lecture method/Project based learning	10

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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Design different types of Clippers using Diodes.	Experiments	BL4-Analyze	2
2	Electric field Detector	PBL	BL6-Create	2
1	To study and plot Input & Output Characteristics of BJT in Common Collector Configuration.	Experiments	BL4-Analyze	2
2	To study and plot Drain Characteristics of JFET in Common Source Configuration.	Experiments	BL4-Analyze	2
4	To study Hartley & Colpitts Oscillator and determine the frequency of oscillation.	Experiments	BL4-Analyze	2
4	To study Wien Bridge Oscillator and determine the frequency of oscillation.	Experiments	BL4-Analyze	2
5	To study and plot the characteristics of Silicon Controlled Rectifier.	Experiments	BL4-Analyze	2
5	mobile charger without Transformer	PBL	BL6-Create	2

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	50	40	20	60	

Part E

Books	1) Lestad, B., & Nashelsky. (2009). Electronics Devices and Circuit Theory, Pearson Education India
Articles	https://ieeexplore.ieee.org/document/4066811
References Books	1) Malvino, L., (2016). Electronic principles, Tata McGraw Hill 2) Sedra., & Smith., (2017). Microelectronics circuits, Oxford University Press 3) Bell, G., (2009). Electronic Devices and Circuits, Prentice-Hall 4) Jasprit Singh, Semiconductor Devices, ISBN 0-471-36245-X S. O. Kasap, Principles of electronic materials and devices, ISBN 0-07-295791-3
MOOC Courses	https://www.coursera.org/specializations/semiconductor-devices https://archive.nptel.ac.in/courses/108/108/108108122/
Videos	https://archive.nptel.ac.in/courses/108/108/108108112/

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	-	-	-	-	-	-	-	-	-	2	2	-	-
CO2	2	3	2	-	-	-	-	-	-	-	-	2	2	-	-
CO3	2	2	3	-	-	-	-	-	-	-	-	2	2	-	-
CO4	2	2	-	2	-	-	-	-	-	-	-	2	2	-	-
CO5	3	3	-	2	-	-	-	-	-	-	-	2	2	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Previous Syllabus 2020-21 ECL0519 Digital Signal Processing

Part B			
Modules	Contents	Pedagogy	Hours
I	Introduction: Introduction to DSP, Discrete-Time Signals, Discrete-Time Systems, Analysis of Discrete-Time Linear Time-Invariant Systems, Discrete Time Systems described by Difference Equation, Implementation of Discrete-Time Systems, Signal Flow Graph representation of Digital Network.	Lecture Method/Video	12
II	Discrete Time Fourier Transform(DTFT): Concept of frequency in discrete and continuous domain and their relationship (radian and radian/sec), freq. response in the discrete domain. Discrete system's response to sinusoidal/complex inputs (DTFT), Representation of LTI systems in complex frequency domain. Z- Transforms: Definition, mapping between s-plane & z-plane, unit circle, convergence and ROC, properties of Z-transform, Z-transform on sequences with examples & exercises, characteristic families of signals along with ROC, convolution, correlation. Discrete Fourier Transforms: Definitions, Properties of the DFT, Circular Convolution, Linear Convolution.	Lecture Method/Video	12
III	Realization of Digital Systems: Introduction, Direct Form Realization of IIR Systems, Cascade Realization of an IIR System, Parallel Form Realization of an IIR System, Ladder Structures: Continued Fraction Expansion of H(z), Example of Continued Fraction, Realization of a Ladder Structure, Example of a Ladder Realization Fast Fourier Transform Algorithms: Introduction, Decimation-In Time(DIT) Algorithm, Computational Efficiency, Decimation in Frequency(DIF) Algorithm.	Lecture Method/Video	10
IV	Finite Impulse Response Filter Design: Windowing and the Rectangular Window, Other Commonly Used Windows Examples of Filter Designs Using Windows, The Kaiser Window	Lecture Method/Video	10
V	Design of Infinite Impulse Response Digital Filters; Introduction to Filters, Impulse Invariant Transformation, Bi-Linear Transformation, All-Pole Analog Filters:	Lecture Method/Video	10

<https://prabandh.itmuniversity.ac.in/hod/syllabusreport/>

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	Butterworth and Chebyshev, Design of Digital Butterworth and Chebyshev Filters		
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
2	PPG Signal processing with IoT devices	PBL	BL5-Evaluate	10
4	Audio Signal Processing and analysis with MATLAB Tool	PBL	BL4-Analyze	10

Revised Syllabus 2021-22 ECL0519 Digital Signal Processing



Syllabus-2021-2022

(SOET)(BTech-Electronics_and_Communication)

Title of the Course	Digital Signal Processing
Course Code	ECL0519[T]

Part A

Year	3rd	Semester	5th	Credits	L	T	P	C	
					2	1	1	4	
Course Type	Embedded theory and lab								
Course Category	Discipline Core								
Pre-Requisite/s	Basic understanding of Fourier Series, Fourier Transform, Laplace Transform, Z-Transform, Difference & Differential Equations.			Co-Requisite/s					
Course Outcomes & Bloom's Level	<p>CO1- To remember the basic terminologies of Signals, Systems & basic operations etc. (BL1-Remember)</p> <p>CO2- To understand the concepts of trigonometry, complex algebra, Fourier transform, z-transform to analyze the operations on signals and acquire knowledge about Systems (BL2-Understand)</p> <p>CO3- To apply the principles of discrete-time signal analysis to perform various signal operations and apply the principles of Fourier Transform analysis to describe the frequency characteristics of discrete-time signals and systems (BL3-Apply)</p> <p>CO4- To analyze the signals & systems by using computer programming tools to process and visualize signals & Systems (BL4-Analyze)</p> <p>CO5- To evaluate signal processing strategies at multidisciplinary activities. (BL5-Evaluate)</p>								
Course Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		SDG (Goals)	SDG1(No poverty) SDG2(Zero hunger)					



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"CELEBRATING DREAMS"

Part B

Modules	Contents	Pedagogy	Hours
I	Introduction to DSP, Discrete-Time Signals, Discrete-Time Systems, Analysis of Discrete-Time Linear Time-Invariant Systems, Discrete Time Systems described by Difference Equation, Implementation of Discrete-Time Systems, Signal Flow Graph representation of Digital Network.	Lecture Method/Video Clips/Group Discussion	12
II	Discrete Time Fourier Transform(DTFT): Concept of frequency in discrete and continuous domain and their relationship (radian and radian/sec), freq. response in the discrete domain. Discrete system's response to sinusoidal/complex inputs (DTFT), Representation of LTI systems in complex frequency domain. Z- Transforms: Definition, mapping between s-plane & z-plane, unit circle, convergence and ROC, properties of Z-transform, Z-transform on sequences with examples & exercises, characteristic families of signals along with ROC, convolution, correlation. Discrete Fourier Transforms: Definitions, Properties of the DFT. Circular Convolution, Linear Convolution.	Lecture Method/Video Clips/Group Discussion	12
III	Realization of Digital Systems: Introduction, Direct Form Realization of IIR Systems, Cascade Realization of an IIR System, Parallel Form Realization of an IIR System, Ladder Structures: Continued Fraction Expansion of H (z), Example of Continued Fraction, Realization of a Ladder Structure. Example of a Ladder Realization Fast Fourier Transform Algorithms: Introduction, Decimation-In Time(DIT) Algorithm, Computational Efficiency, Decimation in Frequency(DIF) Algorithm.	Lecture Method/Video Clips/Group Discussion	10
IV	Finite Impulse Response Filter Design: Windowing and the Rectangular Window, Other Commonly Used Windows Examples of Filter Designs Using Windows, The Kaiser Window	Lecture Method/Video Clips/Group Discussion	10
V	Design of Infinite Impulse Response Digital Filters; Introduction to Filters, Impulse Invariant Transformation, Bi-Linear Transformation, All-Pole Analog Filters:	Lecture Method/Video Clips/Group Discussion	10

<https://prabandh.itmuniversity.ac.in/hod/syllabusreport/>

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	Butterworth and Chebyshev, Design of Digital Butterworth and Chebyshev Filters	
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
2	PPG Signal processing	PBL	BL5-Evaluate	10
3	To implement a MATLAB program for computation of N point DFT of a given sequence and to plot magnitude and phase spectrum using DFT.	Experiments	BL4-Analyze	2
2	To write a MATLAB program for Auto and cross correlation of two sequences.	Experiments	BL4-Analyze	2
3	Write a MATLAB Program to Obtain Linear Convolution of Two Finite Length Sequence	Experiments	BL5-Evaluate	2
2	To implement a MATLAB program for computation of N point DFT of a given sequence and to plot magnitude and phase spectrum using DFT.	Experiments	BL5-Evaluate	2
4	Audio Signal Processing and analysis using MATLAB Software and Machine Learning Algorithms can be applied for the datasets	PBL	BL5-Evaluate	10
3	ECG signal processing and Analysis	PBL	BL5-Evaluate	10

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Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	50	40	20	60	

Part E

Books	1. Salivahanan Digital Signal Processing TMH 2. John C Prokias, Dimitris G Manolakis, "Digital Signal Processing", Pearson Education'
Articles	Tessier, R., & Bureson, W. (2001). Reconfigurable computing for digital signal processing: A survey. Journal of VLSI signal processing systems for signal, image and video technology, 28, 7-27.
References Books	1. Oppenheim & Schafer Digital Signal Processing PHI 2. Johnny R. Johnson, "Digital Signal Processing", PHI
MOOC Courses	https://nptel.ac.in/courses/117102060
Videos	https://nptel.ac.in/courses/117102060

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	-	2	-	-	-	3	-	-	2	-	-
CO2	3	1	1	-	-	2	-	-	-	3	-	-	3	-	2
CO3	2	2	1	2	2	-	-	-	-	-	-	-	3	2	2
CO4	3	2	1	3	-	-	-	-	-	-	-	-	3	3	3
CO5	2	1	-	2	-	-	-	-	-	-	-	-	1	-	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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“ CELEBRATING DREAMS ”

DEPARTMENT OF MECHANICAL ENGINEERING

28 May 2021

Department of Mechanical Engineering

Minutes of BoS Meeting

In order to review the scheme of B.Tech. Mechanical Engineering and M. Tech. Production and Industrial Engineering a meeting of BoS was conducted in online mode on 28th of May 2021 due to COVID-19 pandemic.

The following members were present in the meeting:

Sr. No.	Name	Designation
1	Dr. Ranjeet Singh Tomar	Dean
2	Dr. Mukesh Kumar Pandey	Chairman
3	Dr. R. K. Jain	Member
4	Mr. R. S. Rajput	Member
5	Dr. M. L. Jain	Expert
6	Dr. Manish Sharma	Invitee
7	Dr. Dinesh Singh Tomar	Invitee
8	Mr. Arun Kushwah	Member
9	Mr. Trilok Chauhan	Member
10	Mr. Sateesh Kumar	Member
11	Mr. Jai Kumar	Member
12	Dr. Sanjay Jain	Invitee

Following decisions were taken after discussion:

1. Review/approval of last BoS minutes of meeting held on 12 Aug 2020 was done.
2. Following revisions were made-

- B.Tech. Mechanical Engineering (Specialization in Manufacturing Technology) schemes for batch of 2020-24 have been reviewed and I -VIII for batch 2021-25 have been approved. (Annexure-I attached for details)


Dr. Mukesh Kumar
Pandey


Dr. M. L. Jain


Dr. Rajendra Singh
Rajput


Mr. Arun Kushwah



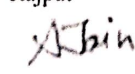
Dr. R. K. Jain


Dr. Ranjeet
Singh Tomar



Mr. Sateesh Kumar



Mr. Jai Kumar



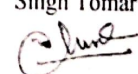
Dr. Sanjay Jain



Dr. Manish Sharma









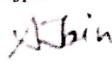


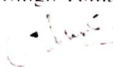


Dr. Dinesh Tomar


Trilok
Chauhan

- Program Electives introduced for batch 2020-24 and 2021-25. (Annexure-II attached for details)
- NCC Credit to be incorporated in BOS and its decision to be taken on university level. A Pool to be established on university level where a student will opt one subject in each semester from I to VI semester for batch 2020-24 and 2021-25.
- M. Tech. Production and Industrial Engineering I & II semester of 2020-24 have been approved.

The Board of Studies recommended above discussed points further for approval by Academic Council of the University.

 Dr. Mukesh Kumar Pandey	 Dr. M. L. Jain	 Dr. Rajendra Singh Rajput	 Mr. Arun Kushwah	 Dr. R. K. Jain	 Dr. Ranjeet Singh Tomar
 Mr. Sateesh Kumar	 Mr. Jai Kumar	 Dr. Sanjay Jain	 Dr. Manish Sharma	 Dr. Dinesh Tomar	 Trilok Chauhan

Annexure-I

- Following changes have been incorporated in the scheme of batch 2021-25
- MEP0302 Machine drawing is introduced as new subject.
 - MEL0621 Robotic Process Automation is introduced as new subject in place of Power Plant Engineering.

Syllabus revision were carried out in the following subjects

S. No.	Subject Code	Name of Subject	% Change of syllabus
1	MEP0302	Machine Drawing	100
2	MEL0621	Robotic Process Automation	100
3	MEL0101[T]	Engineering Mechanics	28.57
4	MEL0140[T]	Manufacturing Technology-I	17
5	MEL 0341[T]	Manufacturing Technology -II	27.27
6	MEL 0310[T]	Mechanics of Solids	38.46
7	MEL0409[T]	Industrial Engineering	30
8	MEL0415[T]	Kinematics of Machines	25
9	MEL0442[T]	Machining processes	25
10	MEL0515[T]	Machine Design-I	20
11	MEL0516[T]	IC Engines	30.77
12	MEL0518[T]	Dynamics of Machines	23
13	MEL0522[T]	Advanced Manufacturing	40
14	MEL0617[T]	Machine Design-II	33.33
15	MEL0723[T]	Refrigeration and Air Conditioning	25
16	MEL0619[T]	Heat and Mass Transfer	21.43
17	MEL0825[T]	Automobile Engineering	23.1
		Overall revision in syllabus	13%




Dr. Mukesh Kumar Pandey



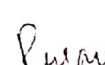
Dr. M. L. Jain



Dr. Rajendra Singh Rajput



Mr. Arun Kushwah



Dr. R. K. Jain



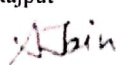
Dr. Ranjeet Singh Tomar



Mr. Sateesh Kumar




Mr. Jai Kumar



Dr. Sanjay Jain



Dr. Manish Sharma



Dr. Dinesh Tomar



Trilok Chauhan

Annexure-II**Scheme of Batch 2020-24
Electives of VII semester**

- (1) MEE0717- Theory of Production process
- (2) MEE0702- Unconventional manufacturing processes
- (3) MEE0703- Product Design and Development
- (4) MEE0704- Reliability Engineering

ELECTIVE – 2:

- (1) MEE0705- Non Conventional Energy Resources
- (2) MEE0706- Optimization Methods
- (3) MEE0708- Mechanical System design
- (4) MEE0707- Introduction to Computational Fluid Dynamics

Electives of VIII semester**ELECTIVE – 3:**

- (1) MEE 809- Vibration and Noise- Measurement and control
- (2) MEE 0810- Foundry Engineering
- (3) MEE 0811- Advanced Welding Technology
- (4) MEE 0812- Tribology

ELECTIVE – 4:

- (1) MEE 0813- Computer Integrated Manufacturing
- (2) MEE 0814- Non Destructive testing
- (3) MEE 0815- Design of Machine Tools
- (4) MEE 0816- Finite Element Method

Scheme of Batch 2021-25**Electives of VII semester****ELECTIVE – 1:**

- (1) MEE0717- Theory of Production process
- (2) MEE0702- Unconventional manufacturing processes
- (3) MEE0703- Product Design and Development
- (4) MEE0704- Reliability Engineering

ELECTIVE – 2:

- (1) MEE0705- Non Conventional Energy Resources
- (2) MEE0706- Optimization Methods
- (3) MEE0708- Mechanical System design
- (4) MEE0707- Introduction to Computational Fluid Dynamics

Dr. Mukesh Kumar
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Mr. Sateesh Kumar

Mr. Jai Kumar

Dr. Sanjay Jain

Dr. Manish Sharma

Dr. Dinesh Tomar

Trilok
Chauhan

Electives of VIII semester**ELECTIVE – 3:**

- (1) MEE 809- Vibration and Noise- Measurement and control
- (2) MEE 0810- Foundry Engineering
- (3) MEE 0811- Advanced Welding Technology
- (4) MEE 0812- Tribology

ELECTIVE – 4:

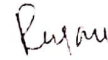
- (1) MEE 0813- Computer Integrated Manufacturing
- (2) MEE 0814- Non Destructive testing
- (3) MEE 0815- Design of Machine Tools
- (4) MEE 0816- Finite Element Method

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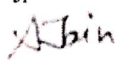
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Dr. Ranjeet
Singh Tomar

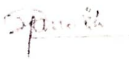
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Mr. Jai Kumar



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Dr. Manish Sharma



Dr. Dinesh Tomar

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Syllabus-2021-2022


(SOET)(BTech-Mechanical Engineering)

Title of the Course	Machine drawing
Course Code	MEP0302[P]


Part A


Year	Semester	Credits	L	T	P	C
			0	0	2	2
Course Type	Lab only					
Course Category	Discipline Core					
Pre-Requisite/s	Basic knowledge of engineering graphics and machine parts.	Co-Requisite/s				
Course Outcomes & Bloom's Level	CO1- To get the fundamentals of machine drawing and its applications.(BL1-Remember Understand) CO2- To understand the basic concept of machine drawing through real-life examples.(BL2-Understand) CO3- To implement the different machine drawing concepts over appropriate drawing dataset(BL3-Apply) CO4- To analyze the drawing performance of machine drawing techniques.(BL4-Analyze) CO5- To evaluate the drawing performance of machine drawing techniques on a corresponding object.(BL5-Evaluate)					
Courses Elements	Skill Development ✓ Entrepreneurship X Employability X Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG9(Industry Innovation and Infrastructure)			


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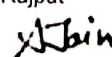

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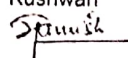

Dr. R. K. Jain



Dr. Ranjeet
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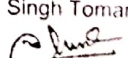

Mr. Sateesh Kumar


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Dr. Manish
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Part B

Modules	Contents	Pedagogy	Hours
Unit-1	Drawing Conventions: Drawing standards, first angle projection, orthographic views, sectioning and its rules, BIS codes for dimensioning, limits, fits and tolerances, surface texture, bill of materials, product data, and production drawings.	Whiteboard, PPT, Drawing sheet	
Unit-2	Conventional Representation conventional representation of machine parts such as threads, slotted heads, square ends, ribs, slotted shafts, splined shafts, bearings, springs, gears, rivet heads and joints, welded joint representation. Assembly machine drawing - drawing types, assembly and blow up parts.	Whiteboard, PPT, Drawing sheet	
Unit-3	Drawing of fasteners: Nut, bolt and washers, locking arrangements, rivets and heads, drawing of various riveted joints, standard proportions, Cotter and Knuckle joints.	Whiteboard, PPT, Drawing sheet	
Unit-4	Assembly drawing of power transmission components: Muff and flange couplings, solid and bushed journal bearings, pedestal bearing, Plummer block, and pulleys. Assembly drawing of IC engine parts: Connecting rod assembly, piston and rod end assembly. Assembly drawing of machine tool parts: Drill spindle, lathe tailstock, lathe spindle assembly, four jaw chuck, and shaper tool head.	Whiteboard, PPT, Drawing sheet	
Unit-5	Computer aided drafting: Software, graphic screen, setting of blank sheet for drawing, draw commands, modify commands, display commands, object snap, dim and miscellaneous commands.	Whiteboard, PPT, Drawing sheet	

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours



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Pandey



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Rajput



Mr. Arun
Kushwah



Dr. R. K. Jain



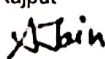
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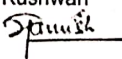
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Mr. Jai Kumar



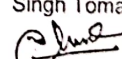
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Experiment-1	To describe sectioning of materials	Experiments	BL2-Understand	2
Experiment-2	conventional representation of machine parts	Experiments	BL2-Understand	2
Experiment-3	drawing of various riveted joints, standard proportions, Cotter and Knuckle joints.	Experiments	BL3-Apply	4
Experiment-4	Assembly drawing of power transmission components and I C Engine parts.	Experiments	BL3-Apply	4
Experiment-5	To study of computer added drafting	Experiments	BL4-Analyze	4

Part D (Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	50	40	20	60	

Part E

Books	1. N.D.Bhatt Machine Drawing Charotar Publication 2 P.S. Gill Engineering Drawing Kataria Publication 3 K C John Textbook of machine drawing EEE, PHI
Articles	
References Books	1 K. L. Narayana Machine Drawing New Age International 2 N Sidheswar Machine Drawing Tata Mcgraw Hill
MOOC Courses	https://nptel.ac.in/courses/112103019
Videos	



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Dr. Rajendra Singh
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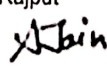
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Singh Tomar



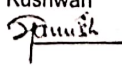
Mr. Sateesh Kumar



Mr. Jai Kumar



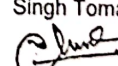
Dr. Sanjay Jain



Dr. Manish
Sharma



Dr. Dinesh
Tomar



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Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	2	2	1	-	-	2	2	2	1	-	-
CO2	1	2	2	2	1	2	2	-	-	-	2	2	3	3	3
CO3	2	1	2	-	-	-	2	2	-	-	-	2	3	-	3
CO4	1	2	2	3	2	-	2	1	-	-	2	2	3	2	2
CO5	-	2	1	2	2	3	2	-	-	-	-	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Dr. Mukesh Kumar
Pandey



Mr. Sateesh Kumar



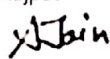
Dr. M. L. Jain



Mr. Jai Kumar



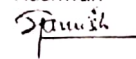
Dr. Rajendra Singh
Rajput



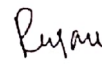
Dr. Sanjay Jain



Mr. Arun
Kushwah



Dr. Manish
Sharma



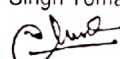
Dr. R. K. Jain



Dr. Dinesh
Tomar



Dr. Ranjeet
Singh Tomar



Trilok
Chauhan

28 May 2021

Department of Mechanical Engineering

Minutes of BoS Meeting

In order to review the scheme of B.Tech. Mechanical Engineering and M. Tech. Production and Industrial Engineering a meeting of BoS was conducted in online mode on 28th of May 2021 due to COVID-19 pandemic.

The following members were present in the meeting:

Sr. No.	Name	Designation
1	Dr. Ranjeet Singh Tomar	Dean
2	Dr. Mukesh Kumar Pandey	Chairman
3	Dr. R. K. Jain	Member
4	Mr. R. S. Rajput	Member
5	Dr. M. L. Jain	Expert
6	Dr. Manish Sharma	Invitee
7	Dr. Dinesh Singh Tomar	Invitee
8	Mr. Arun Kushwah	Member
9	Mr. Trilok Chauhan	Member
10	Mr. Sateesh Kumar	Member
11	Mr. Jai Kumar	Member
12	Dr. Sanjay Jain	Invitee

Following decisions were taken after discussion:

1. Review/approval of last BoS minutes of meeting held on 12 Aug 2020 was done.
2. Following revisions were made-

- B.Tech. Mechanical Engineering (Specialization in Manufacturing Technology) schemes for batch of 2020-24 have been reviewed and I -VIII for batch 2021-25 have been approved. (Annexure-I attached for details)


Dr. Mukesh Kumar
Pandey


Dr. M. L. Jain


Dr. Rajendra Singh
Rajput


Mr. Arun Kushwah



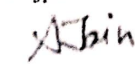
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Mr. Jai Kumar



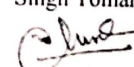
Dr. Sanjay Jain



Dr. Manish Sharma









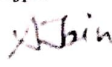


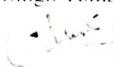


Dr. Dinesh Tomar


Trilok
Chauhan

- Program Electives introduced for batch 2020-24 and 2021-25. (Annexure-II attached for details)
- NCC Credit to be incorporated in BOS and its decision to be taken on university level. A Pool to be established on university level where a student will opt one subject in each semester from I to VI semester for batch 2020-24 and 2021-25.
- M. Tech. Production and Industrial Engineering I & II semester of 2020-24 have been approved.

The Board of Studies recommended above discussed points further for approval by Academic Council of the University.

 Dr. Mukesh Kumar Pandey	 Dr. M. L. Jain	 Dr. Rajendra Singh Rajput	 Mr. Arun Kushwah	 Dr. R. K. Jain	 Dr. Ranjeet Singh Tomar
 Mr. Sateesh Kumar	 Mr. Jai Kumar	 Dr. Sanjay Jain	 Dr. Manish Sharma	 Dr. Dinesh Tomar	 Trilok Chauhan

Annexure-I

- Following changes have been incorporated in the scheme of batch 2021-25
- MEP0302 Machine drawing is introduced as new subject.
 - MEL0621 Robotic Process Automation is introduced as new subject in place of Power Plant Engineering.
- Syllabus revision were carried out in the following subjects

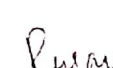
S. No.	Subject Code	Name of Subject	% Change of syllabus
1	MEP0302	Machine Drawing	100
2	MEL0621	Robotic Process Automation	100
3	MEL0101[T]	Engineering Mechanics	28.57
4	MEL0140[T]	Manufacturing Technology-I	17
5	MEL 0341[T]	Manufacturing Technology -II	27.27
6	MEL 0310[T]	Mechanics of Solids	38.46
7	MEL0409[T]	Industrial Engineering	30
8	MEL0415[T]	Kinematics of Machines	25
9	MEL0442[T]	Machining processes	25
10	MEL0515[T]	Machine Design-I	20
11	MEL0516[T]	IC Engines	30.77
12	MEL0518[T]	Dynamics of Machines	23
13	MEL0522[T]	Advanced Manufacturing	40
14	MEL0617[T]	Machine Design-II	33.33
15	MEL0723[T]	Refrigeration and Air Conditioning	25
16	MEL0619[T]	Heat and Mass Transfer	21.43
17	MEL0825[T]	Automobile Engineering	23.1
		Overall revision in syllabus	13%


Dr. Mukesh Kumar
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Dr. M. L. Jain


Dr. Rajendra Singh
Rajput


Mr. Arun Kushwah



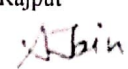
Dr. R. K. Jain


Dr. Ranjeet
Singh Tomar


Mr. Sateesh Kumar



Mr. Jai Kumar



Dr. Sanjay Jain



Dr. Manish Sharma



Dr. Dinesh Tomar


Trilok
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Annexure-II**Scheme of Batch 2020-24
Electives of VII semester**

- (1) MEE0717- Theory of Production process
- (2) MEE0702- Unconventional manufacturing processes
- (3) MEE0703- Product Design and Development
- (4) MEE0704- Reliability Engineering

ELECTIVE – 2:

- (1) MEE0705- Non Conventional Energy Resources
- (2) MEE0706- Optimization Methods
- (3) MEE0708- Mechanical System design
- (4) MEE0707- Introduction to Computational Fluid Dynamics

Electives of VIII semester**ELECTIVE – 3:**

- (1) MEE 809- Vibration and Noise- Measurement and control
- (2) MEE 0810- Foundry Engineering
- (3) MEE 0811- Advanced Welding Technology
- (4) MEE 0812- Tribology

ELECTIVE – 4:

- (1) MEE 0813- Computer Integrated Manufacturing
- (2) MEE 0814- Non Destructive testing
- (3) MEE 0815- Design of Machine Tools
- (4) MEE 0816- Finite Element Method

Scheme of Batch 2021-25**Electives of VII semester****ELECTIVE – 1:**

- (1) MEE0717- Theory of Production process
- (2) MEE0702- Unconventional manufacturing processes
- (3) MEE0703- Product Design and Development
- (4) MEE0704- Reliability Engineering

ELECTIVE – 2:

- (1) MEE0705- Non Conventional Energy Resources
- (2) MEE0706- Optimization Methods
- (3) MEE0708- Mechanical System design
- (4) MEE0707- Introduction to Computational Fluid Dynamics

Dr. Mukesh Kumar
Pandey

Dr. M. L. Jain

Dr. Rajendra Singh
Rajput

Mr. Arun Kushwah

Dr. R. K. Jain

Dr. Ranjeet
Singh Fomar

Mr. Sateesh Kumar

Mr. Jai Kumar

Dr. Sanjay Jain

Dr. Manish Sharma

Dr. Dinesh Tomar

Trilok
Chauhan

Electives of VIII semester**ELECTIVE – 3:**

- (1) MEE 809- Vibration and Noise- Measurement and control
- (2) MEE 0810- Foundry Engineering
- (3) MEE 0811- Advanced Welding Technology
- (4) MEE 0812- Tribology

ELECTIVE – 4:

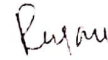
- (1) MEE 0813- Computer Integrated Manufacturing
- (2) MEE 0814- Non Destructive testing
- (3) MEE 0815- Design of Machine Tools
- (4) MEE 0816- Finite Element Method

Dr. Mukesh Kumar
Pandey

Dr. M. L. Jain

Dr. Rajendra Singh
Rajput

Mr. Arun Kushwah



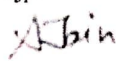
Dr. R. K. Jain

Dr. Ranjeet
Singh Tomar

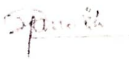
Mr. Sateesh Kumar



Mr. Jai Kumar



Dr. Sanjay Jain



Dr. Manish Sharma



Dr. Dinesh Tomar

Trilok
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Syllabus-2021-2022


(SOET)(BTech-Mechanical Engineering)

Title of the Course	Machine drawing
Course Code	MEP0302[P]


Part A


Year	Semester	Credits	L	T	P	C
			0	0	2	2
Course Type	Lab only					
Course Category	Discipline Core					
Pre-Requisite/s	Basic knowledge of engineering graphics and machine parts.	Co-Requisite/s				
Course Outcomes & Bloom's Level	CO1- To get the fundamentals of machine drawing and its applications.(BL1-Remember Understand) CO2- To understand the basic concept of machine drawing through real-life examples.(BL2-Understand) CO3- To implement the different machine drawing concepts over appropriate drawing dataset(BL3-Apply) CO4- To analyze the drawing performance of machine drawing techniques.(BL4-Analyze) CO5- To evaluate the drawing performance of machine drawing techniques on a corresponding object.(BL5-Evaluate)					
Courses Elements	Skill Development ✓ Entrepreneurship X Employability X Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	SDG9(Industry Innovation and Infrastructure)			


Dr. Mukesh Kumar
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Dr. M. L. Jain



Dr. Rajendra Singh
Rajput

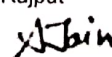

Mr. Arun
Kushwah

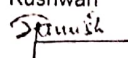

Dr. R. K. Jain



Dr. Ranjeet
Singh Tomar

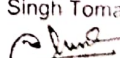

Mr. Sateesh Kumar


Mr. Jai Kumar


Dr. Sanjay Jain


Dr. Manish
Sharma


Dr. Dinesh
Tomar


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Part B

Modules	Contents	Pedagogy	Hours
Unit-1	Drawing Conventions: Drawing standards, first angle projection, orthographic views, sectioning and its rules, BIS codes for dimensioning, limits, fits and tolerances, surface texture, bill of materials, product data, and production drawings.	Whiteboard, PPT, Drawing sheet	
Unit-2	Conventional Representation conventional representation of machine parts such as threads, slotted heads, square ends, ribs, slotted shafts, splined shafts, bearings, springs, gears, rivet heads and joints, welded joint representation. Assembly machine drawing - drawing types, assembly and blow up parts.	Whiteboard, PPT, Drawing sheet	
Unit-3	Drawing of fasteners: Nut, bolt and washers, locking arrangements, rivets and heads, drawing of various riveted joints, standard proportions, Cotter and Knuckle joints.	Whiteboard, PPT, Drawing sheet	
Unit-4	Assembly drawing of power transmission components: Muff and flange couplings, solid and bushed journal bearings, pedestal bearing, Plummer block, and pulleys. Assembly drawing of IC engine parts: Connecting rod assembly, piston and rod end assembly. Assembly drawing of machine tool parts: Drill spindle, lathe tailstock, lathe spindle assembly, four jaw chuck, and shaper tool head.	Whiteboard, PPT, Drawing sheet	
Unit-5	Computer aided drafting: Software, graphic screen, setting of blank sheet for drawing, draw commands, modify commands, display commands, object snap, dim and miscellaneous commands.	Whiteboard, PPT, Drawing sheet	

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours



Dr. Mukesh Kumar
Pandey



Dr. M. L. Jain



Dr. Rajendra Singh
Rajput



Mr. Arun
Kushwah



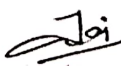
Dr. R. K. Jain



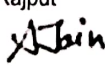
Dr. Ranjeet
Singh Tomar



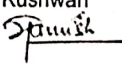
Mr. Sateesh Kumar



Mr. Jai Kumar



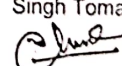
Dr. Sanjay Jain



Dr. Manish
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Experiment-1	To describe sectioning of materials	Experiments	BL2-Understand	2
Experiment-2	conventional representation of machine parts	Experiments	BL2-Understand	2
Experiment-3	drawing of various riveted joints, standard proportions, Cotter and Knuckle joints.	Experiments	BL3-Apply	4
Experiment-4	Assembly drawing of power transmission components and I C Engine parts.	Experiments	BL3-Apply	4
Experiment-5	To study of computer added drafting	Experiments	BL4-Analyze	4

Part D (Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	50	40	20	60	

Part E

Books	1. N.D.Bhatt Machine Drawing Charotar Publication 2 P.S. Gill Engineering Drawing Kataria Publication 3 K C John Textbook of machine drawing EEE, PHI
Articles	
References Books	1 K. L. Narayana Machine Drawing New Age International 2 N Sidheswar Machine Drawing Tata Mcgraw Hill
MOOC Courses	https://nptel.ac.in/courses/112103019
Videos	



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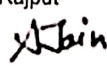
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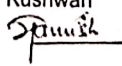
Mr. Sateesh Kumar



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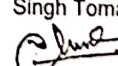
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Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	-	2	2	1	-	-	2	2	2	1	-	-
CO2	1	2	2	2	1	2	2	-	-	-	2	2	3	3	3
CO3	2	1	2	-	-	-	2	2	-	-	-	2	3	-	3
CO4	1	2	2	3	2	-	2	1	-	-	2	2	3	2	2
CO5	-	2	1	2	2	3	2	-	-	-	-	-	3	2	2
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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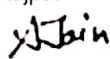
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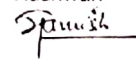
Dr. Rajendra Singh
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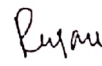
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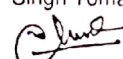
Dr. R. K. Jain



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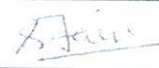
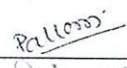
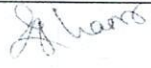
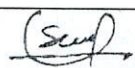
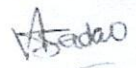
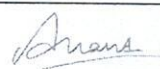

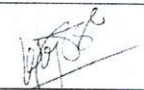
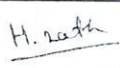

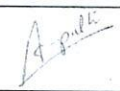


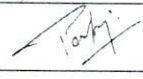

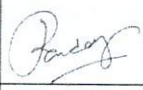

“ CELEBRATING DREAMS ”



DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

Dated:31/05/2021

Minutes of Meeting (BOS)

Meeting of Board of Studies of Department of CSA, School of Engineering & Technology, ITM University Gwalior was held on 31/05/2021 via Online platform. The following members were present in the meeting:

S. No.	Name	Designation	Signature
1.	Dr. Ranjeet Singh Tomar	Dean, SOET	
2.	Dr. Sanjay Jain	Chairman, BOS, Dept. of CSA	
3.	Dr. Pallavi Khatri	Member	
4.	Mrs. Geetanjali Surange	Member	
5.	Dr. Shashikant Gupta	Member	
6.	Dr. Arun Yadav	Member	
7.	Dr. Anand Pandey	Member	
8.	Mrs. Nidhi Birthare	Member	
9.	Mr. K.K. Joshi	Member	
10.	Mr. H.N. Verma	Member	
11.	Mrs. Kirti Shrivastava	Member	
12.	Mr. Ashish Tripathi	Member	
13.	Mr. Arun Agrawal	Member	
14.	Mr. Neeraj Goyal	Member	
15.	Mr. Pankaj Gugnani	Member	
16.	Dr. Vandana Bharti	Invitee Member	
17.	Dr. Mukesh Pandey	Invitee Member	
18.	Dr. Dinesh Singh Tomar	Invitee Member	

19.	Dr.R.S.Jadon,Professor, Dept. ofMCA MITS,Gwalior	Expert	
20.	Dr.VrijendraSingh, Professor Dept.ofIT,IITA	Expert	

Following decisions were taken in the BOS meeting:

1. Minutes of last BOS meeting dated 04/02/2021 has been approved.
2. Following Schemes of examination and Syllabus of B.Tech(CSE) have been reviewed and approved.
 - B.Tech.(CSE)Batch(2018-2022)VII and VIII semester
 - B.Tech.(CSE)Batch(2019-2023)V and VI semester
 - B.Tech.(CSE)Batch(2020-2024)III and IV semester
 - B.Tech.(CSE)Batch(2021-2025)I and II semester
 - B.Tech.+ M.Tech(Integrated)(CSE)Batch(2021-2026)I and II semester
 - B.Tech(CSE)-Specialization in Data Science and Machine learning-Batch(2018-2022)VII and VIII semester
 - B.Tech(CSE)-Specialization in Data Science and Machine learning-Batch(2019-2023)V and VI semester
 - B.Tech(CSE)-Specialization in Data Science and Machine learning-Batch(2020-2024)III and IV semester
 - B.Tech(CSE) -Specialization in Cyber Security– Batch(2020-2024)III and IV semester
 - B.Tech(CSE)-Specialization in Data Science and Machine learning-Batch(2021-2025)I and II semester
 - B.Tech(CSE)-Specialization in Cloud Computing-Batch(2021-2025)I and II semester
 - B.Tech(CSE)-Specialization in Cyber Security– Batch(2021-2025)I and II semester
3. Scheme of Examination and Syllabus of **M.Tech(CSE)** for batch 2021-2023 have been reviewed and approved.
4. Scheme of Examination and Syllabus of **BCA and BCA(Hons)** for batch 2021-2024 have been reviewed and approved.
5. Scheme of Examination and Syllabus of **MCA** for batch 2021-2023 have been reviewed and approved.
6. Environmental Science has been offered as a subject under MOO Online course for B.Tech CSE 1st and BCA/BCA H 2nd Semester.

7. In B.Tech CSE 3rd Semester Specialization, the name of subject **Artificial Intelligence present and future** is changed to **Artificial Intelligence (2020 Batch)**.
8. Subject **Principle of management and Managerial economics** is added to B.Tech CSE and specialization 6th Semester (2019 Batch) replacing **Distributed Systems**.
9. In B.Tech 7th semester CSE and Specialization (2018 Batch) **Software Project management** is removed.
10. In B.Tech 7th semester CSE and Specialization (2018 Batch) **Open elective-1** is introduced.
11. In B.Tech 8th semester CSE and Specialization (2018 Batch) **Wireless and Mobile Communication** is removed.
12. In B.Tech 8th semester CSE and Specialization (2018 Batch) **Open elective-2** is introduced.
13. NCC credit to be incorporated in BOS and its decision to be taken on university level. A Pool to be established on university level where a student will opt one subject in each semester from 1st to 6th.
14. The syllabus of few subjects was revised as per following table for BTECH

Program	Course Code	Course name	Semester	No of Topics	Change in Number of topics	Change %
B.TECH	CSP0304[P]	Java Programming	III	60	12	20
B.TECH	CSL0357[T]	Data Structures & Applications	III	54	6	11.11
B.TECH	CSL0306[T]	Operating System	III	52	8	15.38
B.TECH	CSP0405[P]	Server Side Programming	IV	55	11	11.11
B.TECH	CSL0661[T]	Digital Image Processing	VI	50	6	12
B.TECH	CSL0664T]	Advance Cloud Computing	VI	50	35	70
B.TECH	HUL0602	Principles of Management and managerial economics	VI	30	10	33.33333
B.TECH	CSE0731[T]	Modelling and simulation	VII	42	5	11

15. The syllabus of few subjects was revised as per following table for BCAH

Program	Course Code	Course name	Semester	No of Topics	Change in Number of topics	Change %
BCAH	BCAH-303(T)	Computer Networks	III	43	3	6.97674419
BCAH	BCAH-304(T)	Data Structure	III	41	13	31.7073171

16. The syllabus of few subjects was revised as per following table for BCA

Program	Course Code	Course name	Semester	No of Topics	Change in Number of topics	Change %
BCA	BCA-202 (T)	Object Oriented Programming with C++	II	41	6	14.634146
BCA	BCA-305(T)	Java Programming	III	23	8	34.782609

17. The syllabus of few subjects was revised as per following table for MCA

Program	Course Code	Course name	Semester	No of Topics	Change in Number of topics	Change %
MCA	MCA-105[T]	Data Structures and applications	I	41	13	31.70732
MCA	MCA-202(T)	Computer Graphics	II	27	12	44.44444
MCA	MCA 303 (T)	Web Technologies	III	37	8	21.62162

18. Scheme and Syllabus of the following new courses were approved for BTECH

Program	Course Code	Course name	Semester
BTech	MCL0305[T]	Making of Modern India	III

1. Following changes are introduced for the scheme of 2020 and 2021 batch.

- a. Open elective to be introduced in both Semester 7 and 8.
- b. Program Elective to be increased from 4 to 5. One elective in semester 6th and 2 electives in semester 7th and 8th each.
- c. Mandatory courses like Environmental science and global issues, universal human values, Indian constitution and traditional knowledge are introduced.

Annexure 1- Syllabus of new courses

Note: Further changes in any course introduced by the regularity bodies will be incorporated after the approval of BOS/Academic Council.

S. Jain

**(Dr. Sanjay
Jain) Chairman,
BOS Dept. of CSA
ITM University, Gwalior**



Syllabus-2021-2022

(SOET)(BTech-ComputerScience)

Title of the Course	Making of Modern India
Course Code	MCL0305[T]

Princy

[Signature]

[Signature]

[Signature]

Part A

Year	Semester	Credits	L	T	P	C
			2	0	0	2
Course Type	Theory only					
Course Category	Ability Enhancement Courses					
Pre-Requisite/s	<p>1. *Understanding of Indian Culture and History*: Before delving into the idea of India in a historical perspective, readers should have a foundational understanding of Indian culture, including its commonalities, diversities, and the concept of unity in diversity. Familiarity with cultural accommodations and conflicts within India's historical context is essential, along with an understanding of the role of Indian intelligentsia in shaping these concepts. 2. *Knowledge of Indian Nationalism's Foundations*: To grasp the emergence and growth of Indian nationalism, readers should be acquainted with its anti-colonial basis, economic nationalism, and the dynamics of communalism and nationalism. Understanding revivalism, Enlightenment values, and the influence of European nationalism on Indian nationalism provides crucial context. 3. *Awareness of Social Reform Movements*: Before studying social reform movements in India, readers should have knowledge of the British colonial rule's impact on Indian society and the introspection it prompted. Familiarity with key figures such as Raja Rammohan Roy, Swami Vivekananda, and the issues of women's rights and the caste system is necessary. 4. *Understanding of the Indian National Movement*: Readers should have a basic understanding of the Indian National Movement, including early revolts, the significance of the 1857 revolt, and the role of early nationalists. Knowledge of movements led by Gandhi, socialist and left trends, and the integration of princely states into the nation is crucial, as is an understanding of the partition and India's journey to independence. 5. *Knowledge of Post-Independence India*: To comprehend India after independence, readers should understand the making of the Indian Constitution and the post-independence Nehru era. Familiarity with India's experiences facing wars, its economic trajectory from planning to the liberalization, privatization, and</p>		Co-Requisite/s		<p>1. *Understanding of Colonialism and Imperialism*: Before delving into Indian nationalism and social reform movements, readers should have a grasp of colonialism and imperialism, particularly their impact on India. Knowledge of how colonial powers governed and exploited colonized nations provides context for understanding the emergence of nationalist sentiments and the need for social reforms. 2. *Familiarity with Global History and Movements*: Readers should have a basic understanding of global history and movements, including the Enlightenment, industrialization, and the rise of nationalist movements worldwide. This broader perspective helps contextualize India's historical developments within the global framework of political and social change. 3. *Knowledge of Political Philosophy and Ideologies*: To comprehend Indian nationalism and the Indian National Movement, readers should be familiar with political philosophies and ideologies such as liberalism, socialism, and nationalism. Understanding these ideologies helps in analyzing the motivations, goals, and strategies of Indian nationalist leaders and movements. 4. *Awareness of Socio-Economic Structures*: Before studying post-</p>	

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globalization (LPG) era, along with its achievements and challenges in the 21st century, provides essential context for understanding contemporary India.

independence India and its economic trajectory, readers should have an understanding of socio-economic structures and systems, including feudalism, capitalism, and socialism. This knowledge provides insights into the challenges and strategies involved in India's economic development and policy-making. 5.
 Understanding of International Relations:
 To understand post-independence India's experiences facing wars and its role in the global arena, readers should have a basic understanding of international relations theories and concepts. Knowledge of geopolitics, alliances, and global conflicts helps in analyzing India's foreign policy decisions and its place in the international community.

Course Outcomes & Bloom's Level

CO1- 1. : Students will gain a comprehensive understanding of India's historical evolution, including its cultural diversity, unity in diversity, accommodations, conflicts, and the role of the Indian intelligentsia. They will grasp how these factors shaped the idea of India, particularly in the context of British rule. **(BL2-Understand)**
CO2- 2. : Students will critically analyze the development of Indian nationalism, exploring its anti-colonial basis, economic nationalism, communalism, revivalism, and the influences of Enlightenment values and European nationalism. They will understand the complex factors contributing to the emergence and growth of Indian nationalism. **(BL4-Analyze)**
CO3- 3. Students will appreciate the significance of social reform movements in 19th-century India, understanding the contributions of key figures such as Raja Rammohan Roy and Swami Vivekananda. They will recognize the importance of addressing issues like women's rights and the caste system within the context of British rule and Indian introspection. **(BL5-Evaluate)**
CO4- 4. : Students will understand the dynamics of the Indian National Movement, including early revolts, the 1857 revolt, the role of early nationalists, Gandhi-led mass movements, socialist and left trends, and the integration of princely states. They will comprehend the complexities and strategies involved in India's journey to independence. **(BL2-Understand)**
CO5- 5. Students will analyze the trajectory of India after independence, examining the making of the Indian Constitution, the post-independent Nehru era, India's experiences facing wars, and its economic transition. They will evaluate India's achievements and challenges in the 21st century, gaining insights into its socio-economic and political landscape. **(BL3-Apply)**

Coures Elements

Skill Development X
 Entrepreneurship X
 Employability X
 Professional Ethics X
 Gender X
 Human Values ✓
 Environment X

SDG (Goals)

SDG1(No poverty)
 SDG3(Good health and well-being)
 SDG4(Quality education)
 SDG5(Gender equality)
 SDG10(Reduced inequalities)
 SDG15(Life on land)

Part B

Modules	Contents	Pedagogy	Hours
1	Idea of India in historical perspective a) Indian culture, b) cultural commonness, c)cultural diversities, d)unity in diversity, e) cultural accommodations ,f) cultural conflicts, g)Idea of India and British Rule , h) Role of Indian Intelligentsia.		6
2	Emergence and growth of Indian Nationalism a) Anti-colonial basis, b) Economic Nationalism, c) communalism and nationalism, d) revivalism and Indian nationalism, e)Enlightenment values, f)European Nationalism and Indian Nationalism.		6
3	Social Reform Movements (a) British Rule and Indian introspection, (b) Raja Rammohan Roy, (c) social reform movements in 19th century, (d)Swami Vivekanand, (e)The women issue, (f)Caste system.		6
4	Indian National Movement (a) Early Revolts and 1857 Revolt, (b)Early Nationalists, (c) Bang Bhang Movement ,(d) Gandhi led Mass Movements, (e) Socialist and Left trends, (f) Princely States and their integration into nation, (h)Partition and Independence .		6
5	India after independence a) Making of Indian Constitution, (b) Post Independent Nehru Era, (c) India facing Wars, (d) Indian economy- From Planning to LPG, (e) Achievements, (f) Challenges in 21st century India.		6

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40	40	12	60	28
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
	0	0			

Part E

Books	1. Bipan Chandra and others: India's Struggle For Independence , Penguin Publishers. 2. Bipan Chandra: History Of Modern India, Orient Blackswan publishers. 3. Sunil Khilnani: The Idea of India, Penguin publishers. 4. Shekhar Bandopadhyay: From Plastic to Partition and After, A History of Modern India, Orient Blackswan publishers. 5. Rakesh Batabyal: The Penguin Book of Modern Indian Speeches, 1878 to Present, Penguin Publishers. 6. A R Desai: Social Background of Indian Nationalism, Popular Prakashan . 7. B R Nanda: Mahatma Gandhi ,A Biography, London.
Articles	
References Books	1. B.R.Nanda: Gandhi and His Critics, Oxford 2. Girja Shankar: Socialist Trends in Indian National Movement , Meerut 3. Urmila Phadnis: Towards the integration of Indian States, 1919-1947, Mumbai 4. Bimal Prasad: Gandhi, Nehru and JP, A Study in Leadership, New Delhi 5. Bipan Chandra and others: India Since Independence , Penguin 6. Ramchandra Guha: Makers of Modern India, Penguin. 7. Austin Granville: The Indian Constitution, Oxford.
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	-	1	-	-	-	-	-	-	-	-	1	2	1
CO2	-	-	2	-	-	1	-	1	-	-	-	-	1	1	1
CO3	-	-	-	-	-	-	1	-	-	1	-	-	-	1	-
CO4	-	-	-	-	-	-	-	-	2	-	-	2	1	-	-
CO5	-	-	-	-	-	-	-	-	-	-	2	-	-	1	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-

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DEPARTMENT OF ELECTRICAL ENGINEERING



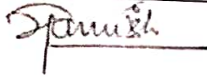

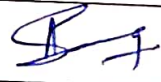
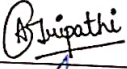



Department of Electrical Engineering

Minutes of BOS Meeting

In order to review the schemes of B. Tech. Electrical Engineering (Specialization in IoT & Sensors) a meeting of BOS was conducted in an online mode on 1st of June 2021 due to COVID-19 pandemic. This meeting is in continuation of BOS meeting previously held on 24th of September 2020.

The following members were present in the meeting:

Sr. No.	Name	Designation	Digital Signature
1	Dr. Ranjeet Singh Tomar	Dean & Chairman	
3	Dr. G. S. Tomar	Expert	
4	Dr. Manish Sharma	Invitee Member	
5	Dr. Mukesh Pandey	Invitee Member	
5	Mr. Abhishek Saxena	Member	
6	Mr. Abhishek Tripathi	Member	
7	Mr. Upendra Kumar Bhusan	Member	

Following decisions were taken after discussion:

1. Approval of minutes of the last BOS meeting held on 24th September, 2020.

2. The schemes of

- B. Tech. Electrical Engineering VII & VIII Semester for batch of 2018 have been approved.
- B. Tech Electrical (Specialization in IoT & Sensors) V & VI semester for batch of 2019 has been approved.
- NCC Credit to be incorporated in BOS and its decision to be taken on university level.
- Subjects are categorized as information, critical thinking and research based.
- The Board of Studies recommended above discussed points further for approval by Academic Council of the University.

Note: Further changes in any course introduced by the regularity bodies will be incorporated after the approval of BOS / Academic Council.

Syllabus attached in Annexure-1



(Dr. Ranjeet Singh Tomar)

Dean and Chairman BOS

Department of Electrical Engineering

School of Engineering & Technology

ITM University Gwalior (MP)