

***DEPARTMENT OF CIVIL
ENGINEERING***

***MINUTES OF BOARD OF
STUDIES MEETING,
DECEMBER 2021 ALONG WITH
ITS ANNEXURES***

DEPARTMENT OF CIVIL ENGINEERING

Summary of Board of Studies Meeting held on 22nd December, 2021

COURSES WHERE SYLLABUS REVISION WAS CARRIED OUT
(Session: Jan - June 2022)

(Course/subject name)	Course Code	Year/Date of introduction	Year/Date of revision	Percentage of content added or replaced	Item No.	Page No.	Link of relevant documents/minutes
Structural Design & Drawing (Steel)	110602	23-11-2019	22-12-2021	02% (added)	6	4, 16	https://drive.google.com/file/d/149ATipo19U_-on73_g5W-0m0Nd/IdPaE/view?usp=sharing
Solid Waste Management	110612	23-11-2019	22-12-2021	05% (added)	7	4, 21	https://drive.google.com/file/d/149ATipo19U_-on73_g5W-0m0Nd/IdPaE/view?usp=sharing
Geotechnical Engineering - I	110411	06-10-2018	22-12-2021	10% (added)	11	5, 38	https://drive.google.com/file/d/149ATipo19U_-on73_g5W-0m0Nd/IdPaE/view?usp=sharing
Energy, Ecology, Environment & Society	100015	28-11-2020	22-12-2021	25% (20% added, 05% replaced)	21	6, 61	https://drive.google.com/file/d/149ATipo19U_-on73_g5W-0m0Nd/IdPaE/view?usp=sharing



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DEPARTMENT OF CIVIL ENGINEERING

Summary of Board of Studies Meeting held on 22nd December, 2021

COURSES WHERE SYLLABUS REVISION WAS CARRIED OUT
(Session: Jan - June 2022)

(Course/subject name)	Course Code	Year/Date of introduction	Year/Date of revision	Percentage of content added or replaced	Item No.	Page No.	Link of relevant documents/minutes
Structural Design & Drawing (Steel)	110602	22-11-2019	22-12-2021	02% (added)	6	4, 16	https://drive.google.com/file/d/120xATp69S6t5w73_e5W43m7d2j0Pz5/view?usp=sharing
Solid Waste Management	110612	22-11-2019	22-12-2021	05% (added)	7	4, 21	https://drive.google.com/file/d/1p4-A7p69S6t5w73_e5W43m7d2j0Pz5/view?usp=sharing
Geotechnical Engineering - I	110411	06-10-2018	22-12-2021	10% (added)	11	5, 28	https://drive.google.com/file/d/120xATp69S6t5w73_e5W43m7d2j0Pz5/view?usp=sharing
Energy, Ecology, Environment & Society	100015	28-11-2020	22-12-2021	24% (20% added, 04% replaced)	21	6, 61	https://drive.google.com/file/d/120xATp69S6t5w73_e5W43m7d2j0Pz5/view?usp=sharing

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Summary of Board of Studies Meeting held on 22nd December, 2021

COURSES FOCUSING ON EMPLOYABILITY/ENTREPRENEURSHIP/ SKILL DEVELOPMENT
 (Session: Jan – Jun 2022)

(Course/subject name)	Course Code	Activities/contents which have a bearing on increasing skill and employability	Item No.	Page No.	Link of relevant documents/minutes
Ethics, Economics, Entrepreneurship & Management	100005	To improve management skill in technical field	-	15	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
. Internship / Project	110801	Working on field based projects	1	2,10	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Safety in Construction	110851	OSHA regulations, BIM, Safety practices in Construction	2	3,10	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Environmental Impact Assessment	110855 / CE0622H2	Planning & developing of EIA reports	2.5	3,4,10	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Digital Land Surveying & Mapping	CE0822H4	Develop digital maps of data using total station	5	3	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Air Pollution & Control	110655	Developing air quality models, air pollution control techniques	3,8	3,4,15	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Strategies for Sustainable Design	110857 / CE0821M1/ 510218/530216	To improve the managerial skill in sustainable design	2.5, 26,	3,7,10, 94,95	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Waste to Energy Conversion	CE0821M2	Understand about the conversion of waste material in to useful energy	5	3	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Retrofitting & Rehabilitation of Civil Infrastructure	CE0822H3	Retrofitting of FRP composites & other structures, Repair & Strengthening of structures	5	3	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Soil Structure Interaction	CE0822H2	Use of FDM in solving soil structure interaction problems	5	3	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing
Structural Dynamics	CE0620H1	To understand about dynamic behavior of structure and design the structure dynamically stable	5	4	https://drive.google.com/file/d/149ATp0o19L-con73_g5W-0m0Nd/dPdPaE/view?usp=sharing

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 Prof. Dr. ...
 Head of Civil Engineering Department, MITS Gwalior

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Geographic Information Systems	CE062211	Applications of GIS for mapping	5	4	https://drive.google.com/file/d/19A1jpe1P1-con73_g5W-Cp0tN-dz/gPaF/view?usp=sharing
Concrete Technology	110654	Mix Design of concrete	8	4,15	https://drive.google.com/file/d/19A1jpe1P1-con73_g5W-Cp0tN-dz/gPaF/view?usp=sharing



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DEPARTMENT OF CIVIL ENGINEERING

Summary of Board of Studies Meeting held on 22nd December, 2021

NEW COURSES ADDED
 (Session: Jan - Jun 2022)

(Course/subject name)	Course Code	Activities/contents which have a bearing on increasing skill and employability	Item No.	Page No.	Link of relevant documents/minutes
Environmental Impact Assessment	110855 / CE0622H2	Planning & developing of EIA reports	2,5	3,4,10	https://drive.google.com/file/d/139A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Digital Land Surveying & Mapping	CE0822H4	Develop digital maps of data using total station	5	3	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Air Pollution & Control	110655	Developing air quality models, air pollution control techniques	3,8	3,4,15	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Retrofitting & Rehabilitation of Civil Infrastructure	CE0822H3	Retrofitting of FRP composites & other structures, Repair & Strengthening of structures	5	3	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Soil Structure Interaction	CE0822H2	Use of FDM in solving soil structure interaction problems	5	3	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Geographic Information Systems	CE0622H1	Applications of GIS for modelling	5	4	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Concrete Technology	110654	Mix Design of concrete	8	4,15	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Scientific Computing using MATLAB	110858	Curve fitting & interpolation, numerical solutions to various problems	2	3,10	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Rural Water Resources Management	CE0822M1	Solving case studies in rural water resource management	3,5	3	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Probability Methods in Civil Engineering	CE0822H1	Regression analysis, hypothesis testing	5	3	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing
Basic Construction Materials	CE0622M1	Applications of FRP & other construction materials	5	1	https://drive.google.com/file/d/149A1rreol9L1on73_g5W-4bnNzLdJpaf/view?usp=sharing

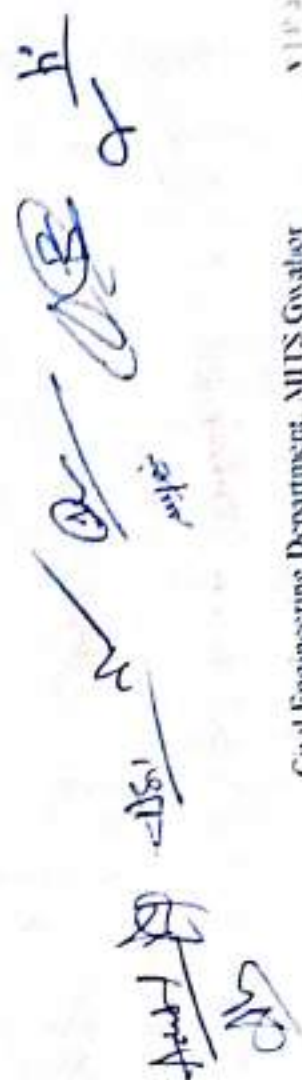


DEPARTMENT OF CIVIL ENGINEERING

Summary of Board of Studies Meeting held on 22nd December, 2021

Feedback on curriculum received from stakeholders: Analysis & ATR

Stakeholder	Student	Faculty	Parents	Alumni
No of Responses	263	10	32	7
Link of Analysis	https://drive.google.com/files/d/1gD8VMEHVZSjWBg8Eg2v7Vb8Z01BQ0DI/view?usp=sharing	https://drive.google.com/files/d/1ID7NsD7FlK_R8rN202GfEngmMjguB7/view?usp=sharing	https://drive.google.com/files/d/1gD8VMEHVZSjWBg8Eg2v7Vb8Z01BQ0DI/view?usp=sharing	https://drive.google.com/files/d/1gD8VMEHVZSjWBg8Eg2v7Vb8Z01BQ0DI/view?usp=sharing
ATR Link	https://drive.google.com/files/d/1D7NsD7FlK_R8rN202GfEngmMjguB7/view?usp=sharing	https://drive.google.com/files/d/1ID7NsD7FlK_R8rN202GfEngmMjguB7/view?usp=sharing	https://drive.google.com/files/d/1ID7NsD7FlK_R8rN202GfEngmMjguB7/view?usp=sharing	https://drive.google.com/files/d/1ID7NsD7FlK_R8rN202GfEngmMjguB7/view?usp=sharing
Link showing Excel Sheet of Google form responses details	https://docs.google.com/spreadsheets/d/1eN86v7a1JgMmDv04DYMW0Fp0Hh4NR0s0t0/view?usp=sharing&mid=107360009007402788001&uspof_truck&sd=trac	https://docs.google.com/spreadsheets/d/1PngC0hNtP8J5TnNs2gQb0LQ1A/ODSN/Cedit?usp=sharing&mid=107360009007402788001&uspof_truck&sd=trac	https://drive.google.com/files/d/1ID7NsD7FlK_R8rN202GfEngmMjguB7/view?usp=sharing	https://drive.google.com/files/d/1ID7NsD7FlK_R8rN202GfEngmMjguB7/view?usp=sharing



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Minutes of Board of Studies Meeting held on 22nd December 2021

The meeting of Board of Studies of the Civil Engineering department was held on Wednesday, 22nd December 2021 online through Google meet (Owing to the unprecedented situation of Covid-19 virus outbreak) Following were present.

- | | |
|--------------------------------------|--|
| 1. Dr. A. K. Nema | (Expert nominated by V C) |
| Professor, Civil Engg., IIT Delhi | |
| 2. Dr. P. K. Jain | (Subject Expert nominated by Academic Council) |
| Professor, Civil Engg., MANIT Bhopal | |
| 3. Dr. Mahesh Jat | (Subject Expert nominated by Academic Council) |
| Professor, Civil Engg., MNIT Jaipur | |
| 4. Mr. Sanjay Sarwate | (Representative from Industry) |
| Deputy Director, CSM L&T | |
| 5. Dr. M. K. Trivedi | (Chairman BoS & Head of the department) |
| 6. Prof. (Mrs.) Archana Tiwari | (Member, BOS) |
| 7. Dr. S. K. Jain | (Member, BOS) |
| 8. Dr. R. Kansal | (Member, BOS) |
| 9. Dr. S. Tiwari | (Member, BOS) |
| 10. Prof. D. Rastogi | (Member, BOS) |
| 11. Prof. A. K. Dwivedi | (Member, BOS) |
| 12. Prof. A. K. Saxena | (Member, BOS) |
| 13. Prof. G. Bhadoriya | (Member, BOS) |
| 14. Prof. Aditya K. Agarwal | (Member, BOS) |
| 15. Prof. Renuka Darshyanekar | (Member, BOS) |
| 16. Dr. Hemant Shrivastava | (Member, BOS) |
| 17. Dr. Prechi Singh | (Member, BOS) |
| 18. Dr. Jayvant Choudhary | (Member, BOS) |
| 19. Dr. Chayan Gupta | (Member, BOS) |
| 20. Dr. Abhilash Shukla | (Member, BOS) |
| 21. Ms. Pratigya Gupta | (Student Member BOS) |
| 22. Mr. Rohit Rathour | (Student Member BOS) |

Leave of absence was granted to one external member who could not attend the meeting.

Previous Board of Studies Meeting Minutes dated 09th June 2021 are confirmed.

Following agendas were discussed & deliberated upon

Item No. / CE - 1	To propose the scheme structure of VIII Semester with the provision of Two Departmental Electives and one Open Category (OC) Course, to be offered in online mode with credit transfer for the batch admitted in 2018-19. The proposed scheme structure of VIII Semester for 2018-19 admitted batch is attached in Annexure - I.
Item No. / CE - 2	To propose the list of courses which the students can opt from SWAYAM/NPTEL/ other MOOC Platforms/ Institution (MITS) MOOC, to be offered in online mode under Departmental Elective (DE) category, for credit transfer in the VIII Semester under the flexible curriculum (Batch admitted in 2018-19) Following courses are finalized as Departmental Elective (DE) courses for VIII semester which will be offered in online mode through SWAYAM/NPTEL/MITS

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	<p>MOOC for credit transfer under the flexible curriculum for 2018-19 admitted batch</p> <p>Departmental Elective - 5 (DE - 5)</p> <ol style="list-style-type: none"> 110851, Safety in Construction 110856, Rock Engineering Geosynthetics & Soil Reinforcement (MITS MOOC) <p>Departmental Elective - 6 (DE - 6)</p> <ol style="list-style-type: none"> 110855, Environmental Impact Assessment 110857, Strategies for Sustainable Design 110858, Scientific Computing using Matlab
Item No. / CE - 3	<p>To propose the list of courses which the students can opt from SWAYAM/NPTEL/MOOC Platform, to be offered in <i>online mode under Open Category (OC) Courses</i>, for credit transfer in the <i>VIII Semester under the flexible curriculum (Batch admitted in 2018-19)</i></p> <p>Following courses are finalized as Open Category (OC) courses for VIII semester which will be offered in online mode through SWAYAM/NPTEL/MOOC for credit transfer under the flexible curriculum for 2018-19 admitted batch</p> <ol style="list-style-type: none"> Air Pollution & Control Rural Water Resources Management
Item No. / CE - 4	<p>To propose the course and syllabi of <i>MITS MOOC Course</i> along with the <i>Course Outcomes</i> for credit transfer in the <i>VIII Semester under the flexible curriculum (Batch admitted in 2018-19)</i></p> <p>Following MITS MOOC course is proposed to be offered as DE course for credit transfer in VIII Semester under the flexible curriculum for batch admitted in 2018-19 - Geosynthetics & Soil Reinforcement.</p> <p>The detailed syllabi along with CO is attached in Annexure - II</p>
Item No. / CE - 5	<p>To propose the list of "Additional Courses" which can be opted for getting an</p> <p>(i) <i>Honours (for students of the host department)</i></p> <p>(ii) <i>Minor Specialization (for students of other departments)</i></p> <p>[These will be offered through SWAYAM/NPTEL/MOOC based Platforms for the VI semester (for the batch admitted in 2019-20) and for VIII semester students (for the batch admitted in 2018-19)]</p> <p>Following SWAYAM/NPTEL/MOOC courses are proposed as additional courses which can be opted for getting Minor Specialization during VIII semester under the flexible curriculum for 2018-19 admitted batch.</p> <ol style="list-style-type: none"> CE0821M1, Strategies for Sustainable Design CE0822M1, Rural Water Resources Management <p>Following SWAYAM/NPTEL/MOOC courses are proposed as additional courses which can be opted for getting Honours during VIII semester under the flexible curriculum for 2018-19 admitted batch.</p> <ol style="list-style-type: none"> CE0822H1, Probability Methods in Civil Engineering CE0822H2, Soil Structure Interaction CE0822H3, Retrofitting & Rehabilitation of Civil Infrastructure CE0822H4, Digital land Surveying & Mapping <p>Following SWAYAM/NPTEL/MOOC courses are proposed as additional courses which can be opted for getting Minor Specialization during VI semester under the flexible curriculum for 2019-20 admitted batch</p> <ol style="list-style-type: none"> CE0620M1, Introduction to Civil Engineering Profession

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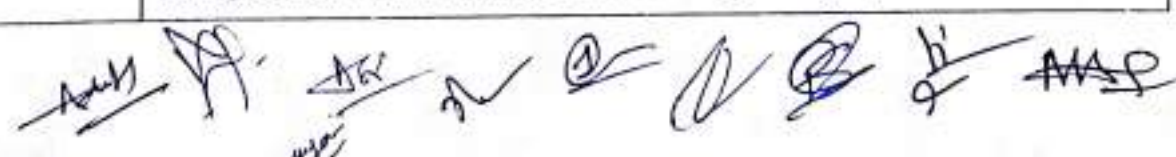
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	<p>2 CE0621M1, Hydraulic Engineering 3 CE0621M2, Water & Waste Water Treatment</p> <p>Following SWAYAM/NPTEL/MOOC courses are proposed as additional courses which can be opted for getting Honours during VI semester under the flexible curriculum for 2019-20 admitted batch</p> <p>1. CE0620H1, Structural Dynamics 2. CE0621H1, Geology & Soil Mechanics 3. CE0622H1, Geographic Information Systems 4. CE0622H2, Environmental Impact Assessment</p>
Item No. / CE - 6	<p>To review and finalize the syllabi for all <i>Departmental Core (DC) Courses</i> of VI Semester (for batches admitted in 2019-20) under the flexible curriculum along with their COs</p> <p>The syllabi along with the COs of the course which is being offered under DC category for batch admitted in 2019-20 for VI semester was reviewed and minor changes are being made in the existing syllabus of 110602 Structural Design & Drawing (Steel) by adding few topics in unit 1. The modified syllabus is attached in Annexure - III and also incorporated in the syllabus file of 2019-20 admitted batch Overall percentage change in syllabus from existing syllabus is 02% (approx.)</p>
Item No. / CE - 7	<p>To review and finalize the courses & syllabi to be offered (for batches admitted in 2019-20) under <i>Departmental Elective (DE) Courses</i> in the VI Semester</p> <p>Following courses are finalized as Departmental Elective (DE) courses for VI semester which will be offered for 2019-20 admitted batch.</p> <p>1. 110612, Solid Waste Management 2. 110613, Construction Planning & Management 3. 110614, Railway, Airport & Tunnel Engineering</p> <p>These courses were offered for 2018-19 admitted batch too, but minor changes have been made in the syllabus of 110612 (approx. 05% change) by adding few topics in Unit - I & V. The syllabi for all these courses is attached in Annexure IV and also incorporated in the syllabus file of 2019-20 admitted batch</p>
Item No. / CE - 8	<p>To propose the list of courses from SWAYAM/NPTEL/MOOC Platforms to be offered (for batches admitted in 2019-20) in online mode under <i>Departmental Elective (DE) Courses</i> with credit transfer, in the VI Semester</p> <p>Following courses are finalized as Departmental Elective (DE) courses for VI semester which will be offered in online mode through SWAYAM/NPTEL/MOOC for credit transfer under the flexible curriculum for 2019-20 admitted batch.</p> <p>1. 110652, Geotechnical Engineering - II (Foundation Engg.) 2. 110654, Concrete Technology 3. 110655, Air Pollution & Control</p>
Item No. / CE - 9	<p>To review and finalize the courses & syllabi to be offered (for batches admitted in 2019-20) under the <i>Open Category (OC) Courses</i> (in traditional mode) for VI semester students of other departments along with their COs</p> <p>Following courses are finalized as Open Category (OC) courses for VI semester which will be offered in traditional mode for 2019-20 admitted batch.</p> <p>1. Building Services & Maintenance 2. Sustainable Materials & Green Buildings</p> <p>The syllabi for all these courses is attached in Annexure - V and also incorporated in the syllabus file of 2019-20 admitted batch</p>

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Item No. / CE - 10	<p>To review and finalize the Experiment list/ Lab manual for Laboratory Courses to be offered in VI semester (for batches admitted in 2019-20)</p> <p>There are no laboratory courses offered in VI semester for batch admitted in 2019-20</p>
Item No. / CE - 11	<p>To review and finalize the scheme and syllabi of B. Tech. IV Semester (for batches admitted in 2020-21) under the flexible curriculum along with their COs</p> <p>The scheme and syllabi along with COs for B Tech IV Semester for batch admitted in 2020-21 is reviewed & finalized, the same is attached in Annexure - VI.</p>
Item No. / CE - 12	<p>To review and finalize the Experiment list/ Lab manual for Laboratory Courses to be offered in IV Semester (for batch admitted in 2020-21)</p> <p>The list of experiments for laboratory courses to be offered in IV Semester for batch admitted in 2020-21 were reviewed and finalized along with the scheme & syllabi of B Tech IV Semester as mentioned in agenda Item No. / CE- 11.</p>
Item No. / CE - 13	<p>To review and finalize the suggestive list of projects which can be assigned under the 'Skill based mini-project' category in various laboratory courses to be offered in Jan - June 2022 semester during IV Semester (for batch admitted in 2020-21)</p> <p>A list of projects which can be assigned as 'Skill based mini-project' in various lab courses to be offered in Jan-June 2022 during IV Semester for batch admitted in 2020-21 is attached in Annexure - VII.</p>
Item No. / CE - 14	<p>To ratify the Scheme & Syllabi, list of experiments and skill based mini projects of First semester of the newly started B. Tech. programmes in the emerging areas (AI & ML, AI & DS, CSD) (started from 2021-22 Session) {Applicable for the concerned departments}</p> <p>This agenda item is not applicable to the Civil Engineering Department</p>
Item No. / CE - 15	<p>To ratify the Scheme & Syllabi, list of experiments and skill based mini projects of First Semester B. Tech. programmes [admitted batch 2021-22 Session] (if any)</p> <p>No changes are recommended in the existing scheme & syllabi, list of experiments and skill based mini projects of First Semester B.Tech Civil Engineering programmes for batch admitted in 2021-22 session.</p>
Item No. / CE - 16	<p>To prepare and recommend the Scheme & Syllabi (along with the Course Outcomes) of II semester of the newly started B. Tech. programmes in the emerging areas (AI & ML, AI & DS, CSD) (started from 2021-22 Session) {Applicable for the concerned departments}</p> <p>This agenda item is not applicable to the Civil Engineering Department</p>
Item No. / CE - 17	<p>To prepare and recommend the list of experiments and skill based mini projects of II semester of the newly started B. Tech. programmes in the emerging areas (AI & ML, AI & DS, CSD) (started from 2021-22 Session) {Applicable for the concerned departments}</p> <p>This agenda item is not applicable to the Civil Engineering Department</p>


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Item No. / CE - 18	<p>To review and finalize the Scheme & Syllabi (along with the Course Outcomes) of II semester B. Tech. programmes (batch admitted 2021-22 Session)</p> <p>The scheme of II Semester B Tech Civil Engineering along with syllabi was reviewed, no changes are proposed in the existing scheme & syllabi for 2021-22 admitted batch, the scheme along with the syllabus is attached in Annexure VIII.</p>								
Item No. / CE - 19	<p>To review and finalize the list of experiments and skill based mini projects of II semester B. Tech. programmes (batch admitted 2021-22 Session)</p> <p>The list of experiments & skill based mini projects of II Semester B Tech Civil Engineering programme for the laboratory course of Basic Civil Engineering Lab is attached in Annexure - IX.</p>								
Item No. / CE - 20	<p>To propose the course "Economics Entrepreneurship & Management" and its syllabi along with the Course Outcomes (COs) for the V Semester B.Tech (Batch admitted 2020-21 onwards). {to be proposed and recommended by Management Department}</p> <p>This agenda item is not applicable to the Civil Engineering Department</p>								
Item No. / CE - 21	<p>To revise and recommend the course "Energy, Environment, Ecology & Society" and its syllabi along with the Course Outcomes (COs). {inclusion of contents related to "Sustainability" is to be done} {to be proposed and recommended by the Civil Engineering Department}</p> <p>The revised syllabi for the course "Energy, Environment, Ecology & Society" along with the COs is attached in Annexure - X.</p>								
Item No. / CE - 22	<p>To propose a new course: Universal Human Values & Professional Ethics (UHVE) & its syllabi along with the Course Outcomes (COs), as Mandatory Course (MC) for the batch admitted in 2020-21 onwards {A portion on 'gender sensitization' also to be included in the syllabus of this course} {to be proposed and recommended by Humanities Department}</p> <p>This agenda item is not applicable to the Civil Engineering Department</p>								
Item No. / CE - 23	<p>To review the CO attainments, to identify gaps and to suggest corrective measures for the improvement in the CO attainment levels for (i) I year April-September 2021 Semester (ii) January-June 2021 Session for II to IV year students</p> <p>CO attainment calculations were done based upon mathematical model developed by the institute. The gap analysis in CO attainment level for all the courses was carried on the basis of the set targets. On the basis of this analysis it is observed that in almost all the courses the CO attainment level was found to achieve the set target, however in some of the courses the CO attainment level for some COs was found to be below the set target, for those COs corrective actions to be taken have been suggested. The compiled report is attached in Annexure - XI. The summary of the same is presented below:</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Total No of Courses</th> <th>Total Number of COs</th> <th>No. of COs Not attained</th> <th>Percentage of COs not attained</th> </tr> </thead> <tbody> <tr> <td>27</td> <td>138</td> <td>05</td> <td>3.6%</td> </tr> </tbody> </table>	Total No of Courses	Total Number of COs	No. of COs Not attained	Percentage of COs not attained	27	138	05	3.6%
Total No of Courses	Total Number of COs	No. of COs Not attained	Percentage of COs not attained						
27	138	05	3.6%						


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Item No. / CE - 24	<p>To review Curricula feedback from various stakeholders, its analysis and impact</p> <p>The curricula feedback was taken from various stakeholders. The compiled report along with its analysis & ATR is attached in Annexure - XII (a) & (b)</p>
Item No. / CE - 25	<p>To review course outcomes (COs) feedback of various courses, its analysis and impact</p> <p>The course outcomes (COs) feedback of various courses running in the previous semester had been taken by various course coordinators/class coordinators. The compiled report along with its analysis is attached in Annexure - XIII</p>
Item No. / CE - 26	<p>Any other matter</p> <p>1. Approval of SWAYAM/NPTEL course for credit transfer in PG 2nd Semester (Batch Admitted in 2021-2022) as DE Courses to be offered through online mode.</p> <p>Following courses will be offered as DE course (Through SWAYAM/NPTEL) in online mode for credit transfer in the upcoming 2nd Semester of PG programme (Batch admitted in 2021-2022).</p> <p>M.E. C.T.M. 2nd Semester 510217, Safety in Construction, 510218, Strategies for Sustainable Design</p> <p>M.Tech Environmental Engineering 2nd Semester - 530216, Strategies for Sustainable Design</p> <p>In view of the above 2 points, the existing schemes of 2nd Semester M.E. C.T.M. & M.Tech Environmental Engineering is slightly modified to include the list of these courses, the modified schemes are attached in Annexure - XIV</p>

The meeting ended with vote of thanks to the chair.

Digitally approved

(Ms. Pratigya Gupta)
Student Member, BoS

Digitally Approved

(Mr. Rohit Rathour)
Student Member, BoS

Abhilashi Shukla

(Dr. Abhilashi Shukla)
Member, BoS

(Dr. Chayan Gupta)
Member, BoS

Chand

(Dr. Jayvant Choudhary)
Member, BoS

Prachi Singh

(Dr. Prachi Singh)
Member, BoS

(Dr. Hemant Shrivastava)
Member, BoS

(Prof. Renuka Darshyamkar)
Member BoS

(Prof. Aditya K. Agarwal)
Member BoS

(Prof. G. Bhadoriya)
Member BoS

(Prof. A. K. Saxena)
Member BoS

(Prof. A. K. Dwivedi)
Member BoS

(Prof. B. Rastogi)
Member, BoS

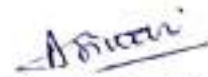
(Dr. S. Tiwari)
Member, BoS

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(Dr. R. Karsal)
Member, BoS



(Prof. (Mrs) A. Tiwari)
Member, BoS



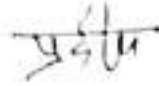
(Dr. S. K. Jain)
Member, BoS



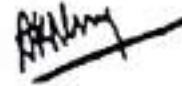
(Mr Sanjay Sarwate)
Industry Representative



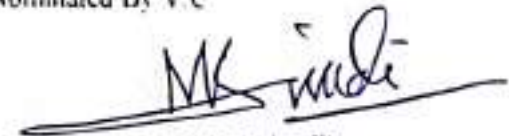
(Dr. Mahesh Jat)
Subject Expert Nominated by Academic Council



(Dr. P. K. Jain)



(Dr. A. K. Nema)
Expert Nominated By V.C



(Dr. M. K. Trivedi)
Head of Department & Chairman, BoS

ANNEXURE – I

(Scheme 8th Sem B.Tech Civil Engineering (2018
Admitted Batch))

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Civil Engineering Department, MITS Gwalior

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
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Scheme of Examination

B. Tech. VIII Semester (Civil Engineering)

(For Batch Admitted in 2018-2019)

S. No.	Subject Code	Category Code	Subject Name	Maximum Marks Allotted						Total Marks		Contact Periods per Week			Total Credits
				Theory Slot		Practical Slot		MOOCs		L	T	P			
				End Sem.	Mid Sem. / Assignment	End Sem.	Lab Work / Sessional	Assignment	Exam						
1.	DE	(DE-5)*		-	-	-	-	25	75	100	3	-	-	3	
2.	DE	(DE-6)*		-	-	-	-	25	75	100	4	-	-	4	
3.	OC	(OC-4)*		-	-	-	-	25	75	100	2	-	-	2	
4.	110801	DLC	Internship / Project (DLC-9)	-	-	-	250	150	-	400	-	-	-	6	3
5.	110802	PD	Professional Development*	-	-	-	-	50	-	50	-	-	-	2	1
Total				-	-	-	250	200	75	225	750	9	-	8	13
6.	Additional Courses for obtaining Honours or Minor Specialization by desirous students			Permitted to opt for <u>maximum 02 additional courses</u> for the award of Honours or Minor Specialization											

* At least one of these courses must be run through SWAYAM/NPTEL/MOOC.

* Evaluation will be based on participation/awards brought by the students to the institution in national/state level technical and other events during the complete tenure of the UG program (participation in professional chapter activities, club activities, cultural events, sports, personality development activities, collaborative events, MOOCs and technical events)

SEMESTER - VIII			
DE - 5 (Through SWAYAM/NPTEL/MITS MOOC)	DE - 6 (Through SWAYAM/NPTEL/MITS MOOC)	OC - 4 (Through SWAYAM/NPTEL)	
110851. Safety in Construction	110855. Environmental Impact Assessment	Air Pollution & Control	
110856. Rock Engineering	110857. Strategies for Sustainable Design	Rural Water Resources Management	
	110858. Scientific Computing using Matlab		



ANNEXURE – II

**(Syllabus MITS MOOC 8th Sem B.Tech Civil
Engineering (2018 Admitted Batch))**

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Civil Engineering Department, MITS Gwalior

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ANNEXURE – II

SYLLABUS FOR MITS MOOC COURSE TO BE OFFERED
IN VIII SEMESTER

Course Code:

Course Name: Geosynthetics and Soil Reinforcement

L	T	P	Credit
3	0	0	3

Course Objectives:

1. To understand the emerging trends of geosynthetics in geotechnical engineering
2. To evaluate the different properties of including different tests
3. To analyze the functions of geosynthetics and its suitability
4. To design different structures using geosynthetics according to various applications

Syllabus:

Unit I

Introduction to Geosynthetics: Historical developments, Definitions and classification, Basic functions and selection, Use in India.

Unit- II

Manufacturing: Materials and Process: Raw materials and manufacturing processes, Different types of bonding process.

Unit- III

Properties & Functions of Geosynthetics: Various properties of geosynthetics & their testing, Functions of geosynthetics: Reinforcement, Separation, Filtration, Drainage, Barrier Functions, and Confinement.

Unit- IV

Applications of Geosynthetics: Application areas: Retaining walls, Embankments, Shallow foundations, Unpaved roads, Paved roads, Airport, Railway tracks, Slopes, Landfills, Earth dams, Containment ponds, Reservoirs, Ponds, Canals, Pipeline and drainage systems, Tunnels.

Unit- V

Principles of Soil Reinforcement: Principles of soil reinforcement; Design and construction of geosynthetic reinforced soil retaining structures – walls and slopes, Codal provisions.

Course Outcomes:

Upon completion of the course, the students will be able to:

CO1: Identify the different types of geosynthetics and their importance in geotechnical field.

CO2: Understand the mechanism of formation of different geosynthetics

CO3: Analyze and compute different properties of geosynthetics

CO4: Apply the knowledge to appropriate field situation.

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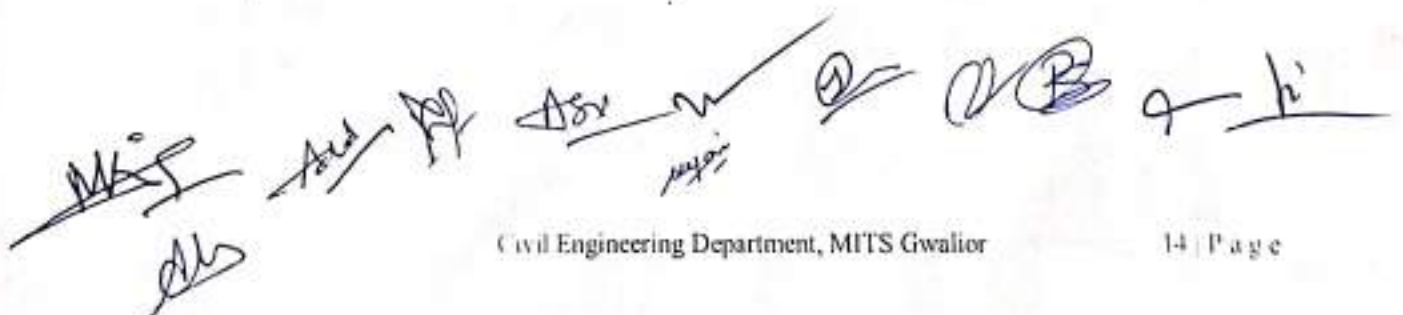
Suggestive Readings:

1. Geosynthetics and Their Applications by S. K. Shukla and J.H Yin, CRC Press.
2. Reinforced Soil Engineering: Advances in Research and Practice by Hoe I. Ling, Dov Leshchinsky, Fumio Tatsuoka, Marcel Dekker, Inc.
3. Earth Reinforcement and Soil Structures by Colin John Francis Phillip Jones, Butterworths & Co.

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ASR
MS
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③
K
MS

ANNEXURE – III

(Scheme 6th Sem B.Tech Civil Engg. & Modified Syllabus
DC 6th Sem B.Tech Civil Engineering (2019 Admitted
Batch))



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
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Scheme of Examination
B. Tech. VI Semester (Civil Engineering)

[For batch admitted in Academic Session 2019-20]

S. No.	Subject Code	Category Code	Subject Name	Maximum Marks Allotted						Total Marks	Contact Periods per Week			Total Credits		
				Theory Slot		Practical Slot		MOOCs			L	T	P			
				End Sem.	Mid Sem. Assignment	Quiz / Assignment	End Sem. Lab Work / Sessional	Assignment	Exam							
1.	100005*	HSMC	Ethics, Economics, Entrepreneurship & Management (HSMC-1)	70	20	10	-	-	-	-	100	3	-	-	3	
2.	110602	DC	Structural Design & Drawing (Steel) (DC-14)	70	20	10	-	-	-	-	100	3	1	-	4	
3.		DE	(DE-1)*	70	20	10	-	-	-	-	100	3	1	-	4	
4.		DE	(DE-2)*	-	-	-	-	-	-	25	100	3	1	-	4	
5.		OC	(OC-1)*	70	20	10	-	-	-	-	100	2	1	-	3	
6.	100007	MC	Disaster Management (MC)	70	20	10	-	-	-	-	100	3	-	-	3	
7.	110607	DLC	Minor Project - II (DLC-5)	-	-	-	100	50	-	-	150	-	-	4	2	
			Total	350	100	50	100	50	50	25	75	750	17	4	4	23
8.	100006	MC	Indian Constitution & Traditional Knowledge (Audit Course) (MC-1)	70	20	10	-	-	-	-	100	3	-	-	-	
9.			Additional Courses for obtaining Honours or Minor Specialization by deserving students	Permitted to opt for maximum 02 additional courses for the award of Honours or Minor Specialization												
				Summer Internship Project - III (On Job Training) for Four Weeks Duration : Evaluation in VII Semester												

*This course will run for Group B/A in VII semester respectively.

† This course will run for Group B/A in VII semester respectively. (Passing is optional, however a separate marksheet will be issued to those who qualify).

SEMESTER - VI		
DE - I	DE - 2 (Through SWAYAM/NPTEL)	OC - 1
110612. Solid Waste Management	110652. Geotechnical Engineering II (Foundation Engineering)	Building Services & Maintenance
110613. Construction Planning & Management	110654. Concrete Technology	Sustainable Materials & Green Buildings
110614. Railways, Airport & Tunnel Engineering	110655. Air Pollution & Control	



Civil Engineering Department, MITS Gwalior

ANNEXURE – III

MODIFIED SYLLABUS OF DC COURSE TO BE OFFERED IN VI SEMESTER

For 2019-2020 admitted batch

Course Code: 110602

Course Name: Structural Design & Drawing (Steel)

L	T	P	Credit
3	1	0	4

Course Objectives:

- 1) To learn IS 800-2007 code of practice for the design of Compression, Tension and Flexural members using various cross-sections.
- 2) To understand the behavior of steel structural components subjected to gravity loads.
- 3) To study the design of bolted and welded connections.
- 4) To study the behaviour and design of compression and tension members using simple and built-up sections.
- 5) To understand behaviour of flexural members and the design laterally restrained & unrestrained beams.
- 6) To design plate girders & stiffeners.

Syllabus:

Unit-I

Various loads, Partial Load factors, Structural properties of steel, Design of structural connections – Bolted and Welded connections, eccentric connection. Round tubular sections, grades, uses and sectional properties, connections in tubular structures, Codal provision.

Unit-II

Design of Tension members. Codal provision. Lug angles & Tension splices.

Unit-III

Design of Compression member, Design of columns-simple and compound, Lacings & Battens. Design of footings for steel structures, Slab base, gusseted base. Codal provision.

Unit-IV

Design of built up beams, web buckling and crippling, curtailment of flanges. Design of Laterally supported and unsupported beams, web buckling and crippling. Codal provision.

Unit-V

Design of plate girder. Curtailment of flanges, Design of stiffeners (bearing, Vertical and horizontal), Codal provision.

Course Outcomes:

Upon completion of the course, the students will be able to:

CO 1: Explain the principles of steel structural design using relevant IS Codes.

CO 2: Evaluate structural behaviour of different steel structural elements.

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CO 3: Analyse a given section of steel structural element using IS codes.

CO 4: Design different elements of steel structure under various loading conditions using relevant IS codes.

CO 5: Design a structure/ component to meet desired needs within realistic constraints such as economy, safety, viable construction & its sustainability as per codal provisions.

Text Books:

1. Limit State Design of Steel Structures, S. K. Duggal, McGraw Hill Publication, 3rd edition, 2017

Reference Books:

1. Design of Steel Structures, S. S. Bhavikatti, International Publishing House, 2014
2. Design of Steel Structures, N. Subramanian, Oxford University Press India, 2008

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For 2018-2019 admitted batch

Course Code: 110602

Course Name: Structural Design & Drawing (Steel)

L	T	P	Credit
3	1	0	4

Course Objectives:

- 1) To learn IS 800-2007 code of practice for the design of Compression, Tension and Flexural members using various cross-sections.
- 2) To understand the behavior of steel structural components subjected to gravity loads.
- 3) To study the design of bolted and welded connections.
- 4) To study the behaviour and design of compression and tension members using simple and built-up sections.
- 5) To understand behaviour of flexural members and the design laterally restrained & unrestrained beams.
- 6) To design plate girders & stiffeners.

Syllabus:

Unit-I

Various loads, Partial Load factors, Structural properties of steel, Design of structural connections – Bolted and Welded connections, eccentric connection. Codal provision.

Unit-II

Design of Tension members. Codal provision. Lug angles & Tension splices.

Unit-III

Design of Compression member, Design of columns-simple and compound, Lacings & Battens. Design of footings for steel structures, Slab base, gusseted base. Codal provision.

Unit-IV

Design of built up beams, web buckling and crippling, curtailment of flanges. Design of Laterally supported and unsupported beams, web buckling and crippling. Codal provision.

Unit-V

Design of plate girder. Curtailment of flanges, Design of stiffeners (bearing, Vertical and horizontal), Codal provision.

Course Outcomes:

Upon completion of the course, the students will be able to:

CO 1: Explain the principles of steel structural design using relevant IS Codes

CO 2: Evaluate structural behaviour of different steel structural elements.

CO 3: Analyse a given section of steel structural element using IS codes.

CO 4: Design different elements of steel structure under various loading conditions using relevant IS codes.

CO 5: Design a structure/ component to meet desired needs within realistic constraints such as economy, safety, viable construction & its sustainability as per codal provisions

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Text Books:

1. Limit State Design of Steel Structures, S. K. Duggal, McGraw Hill Publication, 3rd edition, 2017

Reference Books:

1. Design of Steel Structures, S. S. Bhavikatti, International Publishing House, 2014
2. Design of Steel Structures, N. Subramanian, Oxford University Press India, 2008

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ANNEXURE – IV

**(Syllabus of DE Courses to be offered in
conventional mode in B.Tech Civil Engg. VIth
Semester (for 2019-2020 admitted batch))**



ANNEXURE – IV

SYLLABUS OF DE COURSES (Conventional Mode) TO BE
OFFERED IN VI SEMESTER

For 2019-2020 admitted batch

Course Code: 110612

Course Name: Solid Waste Management

L	T	P	Credit
3	1	0	4

Course Objectives:

- 1) To provide broad knowledge on various aspects of planning & implementation of a solid waste management system in a city/town.
- 2) To understand the principles applied in solid waste management.
- 3) To understand various ways to collect, treat & disposal of waste.
- 4) To understand various ways of energy recovery from waste.
- 5) To provide an insight into the principles of hazardous & other forms of waste management.

Syllabus:

Unit I:

Introduction to Waste Management, Objective of Solid Waste Management, Principle of Municipal Solid Waste Management, Functional Elements of Solid Waste Management, Salient features of various Indian legislations for waste management (SWM rules, HWM rules, BMW rules etc), Current Scenario of Waste Management in India – Introduction to SBM, Classification of solid waste, composition, Physical, chemical & biological properties of municipal solid waste, Quantity of solid waste, Sampling & analysis of solid waste.

Unit II:

Handling of waste at source, source segregation, Collection, conveyance, separation & recycling of solid waste: Types of collection system, Collection routes, equipment's, transfer station, transport methods, material separation & recycling of MSW.

Unit III:

Disposal of solid waste by Land fill method; Classification, type, method, site consideration composition and control of gases, Leachate control inland fills, surface water management, landfill operation & care. Remediation of old landfill sites.

Unit IV:

Processing of solid waste: Thermal conversion technologies, Incineration, Pyrolysis gasification, environmental control system. Biological & Chemical conversion technologies, aerobic composting, anaerobic digestion, other biological and chemical transformation.

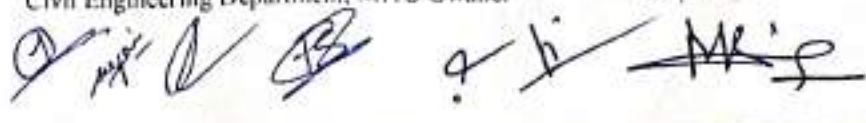
Unit V:

Introduction to hazardous waste, handling, treatment & disposal of hazardous waste. Introduction to Biomedical waste management process - disposal of Biomedical waste with special focus on current scenario of covid-19 waste, E-Waste & Plastic Waste management.



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Course Outcomes:

Upon completion of the course, the students will be able to:

- CO 1: Explain the principles & concepts of waste management.
- CO 2: Apply various techniques in collecting the waste.
- CO 3: Apply various techniques of reducing the waste.
- CO 4: Apply various techniques in disposal of waste.
- CO 5: Plan an effective & efficient waste management system

Text Books:

1. Text Book of Solid Wastes Management, Iqbal H. Khan and Naved Ahsan, CBS Publishers, 1st edition 2012
2. Integrated Solid Waste Management, Hilary Theisen and Samuel A, Vigil, George Tchobanoglous, McGraw Hill New York, 1993

Reference Books:

1. Environmental Engineering, Rowe, Peavy & Tchobanoglous, Tata McGraw Hill Publications, 2017
2. CPHEEO, Manual on Municipal Solid Waste management, Central Public Health and Environmental Engineering organization, Government of India, New Delhi, 2016
3. Solid waste Engineering, Vesilind P.A., Worrel H. W. and Reinhard, Thomson Learning Inc, 2003

A collection of handwritten signatures and initials in black ink, arranged in two rows. The top row contains five distinct signatures, and the bottom row contains three signatures, including one that appears to be 'MR. I'.

Course Code: 110613

Course Name: Construction Planning & Management

L	T	P	Credit
3	1	0	4

Course Objectives:

- 1) To make student conversant with the concepts and importance of the subject of construction planning & management.
- 2) To provide a broad knowledge on how to make bar chart, work break structure of a project, schedules.
- 3) To provide a broad knowledge on how to analyze a problem using various techniques of project management like CPM, PERT & optimization of time & cost of a project.
- 4) To provide an insight into various types of machinery used in construction works & various concepts of man & material management.

Syllabus:

Unit I

Modern management techniques: An overview of planning process, planning through Bar Charts and Milestone charts, Network techniques, Basic concept of network preparations, CPM and PERT techniques with network analysis.

Unit II

Construction management: Principles of construction management, Planning for Job Layout, Advantages of Job Layout, Scheduling Techniques of Construction Project.

Unit III

Construction equipment's: Factors affecting selection, investment and operating cost, Efficiency and capacity rating of various equipment's, study of equipment's required for various jobs such as earthwork, dredging, conveyance, concreting, hoisting, pile driving, compaction and grouting. Equipment Management.

Unit IV

Time & Cost Optimization using Network Techniques: Time computations using CPM & PERT, Probability of achieving completion time, Project cost, Direct & Indirect cost, Cost vs. Time curves, Total project cost & optimum duration, Contracting the network for cost optimization, Time cost optimization

Unit V

Site Organization & Manpower management: Introduction of site organization, types of organization, organization chart & manuals, Manpower Management, Labour laws (Compensation Act etc.) & Human relations, Welfare facilities, Safety Management.

Course Outcomes:

Upon completion of the course, the students will be able to:

CO 1: Explain the concepts of construction planning & management process.



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- CO 2: Describe various techniques used in construction planning & management.
- CO 3: Apply techniques of project planning & management.
- CO 4: Analyze various problems of time & cost optimization using network techniques like CPM & PERT.
- CO 5: Plan effectively for manpower & material management in a project along with suitable safety measures.

Text Books:

- 1) K. K. Chitkara, Construction Project Management, McGraw Hill International Publishers.
- 2) B. C. Punmia & K. K. Khandelwal, Project Planning & Control with PERT & CPM, Laxmi Publishers.
- 3) D. K. Shrivastava, Construction Planning & Management.
- 4) Neeraj Kumar Jha, Construction Project Management, Pearson Publishers.

Reference Books:

- 1) Gahlot & Dhir, Construction Management, New Age International Publishers.
- 2) L.S. Srinath, PERT & CPM – Principles & Applications, East West Press.
- 3) Sengupta & Guha, Construction Management & Planning, McGraw Hill Publishers.
- 4) Peurify, Construction Equipment.

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Course Code: 110614

Course Name: Railway, Airport & Tunnel Engineering

L	T	P	Credit
3	1	0	4

Course Objectives:

- 1) To understand the requirements of airport, runway & taxi – way.
- 2) To understand the requirement of lighting & signal & traffic control at airports.
- 3) To understand the geometrical elements of railway track.
- 4) To understand the properties of good ballast.
- 5) To understand the track alignment, super elevation, turnout, yards.
- 6) To understand the principles of signalling & interlocking.
- 7) To understand the construction of tunnels.

Syllabus:

Unit-I Introduction to Railway Engineering

Tractive resistance & Permanent way, Principles of Transportation, Transportation by Road, Railways, Airways, Waterways, their importance and limitations. Route surveys and alignment, railway track, development and gauges. Hauling capacity and tractive effort.

- (i) Rails- types, welding of rails, wear & tear of rails, rail creep ultrasonic Testing of Rails.
- (ii) Rail fastenings- types – Fishplates, spikes bearing plates, chairs, keys, check and guard rails, Elastic Rail Clips (ERC), Vossloh fastening.
- (iii) Sleepers, types & comparison, requirement of a good sleeper, sleeper density, Turnouts.
- (iv) Ballast –Requirement of good ballast, various materials used as ballast, quantity of ballast, Ballast Cleaning.

Different methods of plate laying, material trains, calculation of materials required, relaying of track.

Unit-II

Track alignment, Geometrical Design, Gradient & grade compensation, Super Elevation, Equilibrium, Cant and Cant-deficiency, relationship of super elevation, gauge, speed & radius of curves, speed on curves, Limits of super elevation, Cant deficiency, Negative super elevation, curves, transition curves, necessity of points and crossing. Turnouts, Points of switches, Types of switches, crossing, calculation of turnouts, sleepers at points & crossing, Types of Track junctions. Types, locations, general equipments, layouts, marshalling yards. Definition, layout details, designs of simple turnouts.

Stations and Yards: Site selection for a Railway stations, Requirements of railway stations, junction station & terminals, location, layout & details, Types of signals in stations and yards, principles of signaling and interlocking, Modern development in railways, Modernization of track for high speed, Maintenance of track, Track drainage.

Unit – III Airport Planning, Runway & Taxiway

Airport site selection, air craft characteristic and their effects on runway alignments, wind rose diagrams, basic runway length and corrections, classification of airports. Geometrical elements: taxi ways and runways, pattern of runway capacity.

Unit – IV Airport, Obstructions, Lightning & Traffic control

Zoning regulations, approach area, approach surface-imaginary, conical, horizontal. Rotating beacon, boundary

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lights, approach lights, runway and taxiway lighting etc. instrumental landing system, precision approach radar.

Unit-V Tunnels

Selection of route, Engineering surveys, alignment, shape and size of tunnel, bridge action, pressure relief phenomenon, Tunnel approaches, Shafts, pilot shafts, Construction of tunnels in soft soil, hard soil and rock, Different types of lining, methods of lining, Mucking operation, Drainage and ventilation, Examples of existing important tunnels in India and abroad.

Course Outcomes:

Upon completion of the course, the students will be able to:

- CO 1: Explain the elements of airport planning, bridges & tunnels.
- CO 2: Design runway & taxiway system as per regulations.
- CO 3: Explain various elements of railway tracks, signalling, yards, bridges & tunnels.
- CO 4: Illustrate various gauge, signals, fasteners, turnouts, crossing etc.
- CO 5: Apply construction methods of railway tunnels.

Text Books:

1. Airport Planning & Design, S. K. Khanna & M. G. Arora, Nem chand Publishers, 6th edition, 1999
2. Railway Engineering, Arora & Saxena, Dhanpat Rai & Sons, 2010

Reference Books:

1. Airport Planning, Froesch, Charles, Andesite Press, 2017
2. The Planning & Design of Airports, Hortonjeff Robert, MHE, 5th edition, 2010
3. Railway Engineering, S.C. Rungwala, Charotar Publication House, Anand, 2012
4. Railway Tack, K.F. Antia, New Book Company, 5th edition, 1960

Handwritten signatures and initials:
A large collection of handwritten signatures and initials in black ink, including names like 'S.K. Khanna', 'M.G. Arora', 'S.C. Rungwala', and 'K.F. Antia', along with various initials and marks.

Course Code: 110612

Course Name: Solid Waste Management

L	T	P	Credit
3	1	0	4

Course Objectives:

- 1) To provide broad knowledge on various aspects of planning & implementation of a solid waste management system in a city/town.
- 2) To understand the principles applied in solid waste management.
- 3) To understand various ways to collect, treat & disposal of waste.
- 4) To understand various ways of energy recovery from waste.
- 5) To provide an insight into the principles of hazardous waste management.

Syllabus:

Unit I:

Functional Elements of Solid Waste Management, Objective of Solid Waste Management, Principle of Municipal Solid Waste Management, Classification of solid waste, composition, Physical, chemical & biological properties of municipal solid waste, Quantity of solid waste, Sampling & analysis of solid waste.

Unit II:

Collection, conveyance, separation & recycling of solid waste: Types of collection system, Collection routes, equipment's, transfer station, transport methods, material separation & recycling of MSW.

Unit III:

Disposal of solid waste by Land fill method; Classification, type, method, site consideration composition and control of gases, Leachate control inland fills, surface water management, landfill operation & care. Remediation of old landfill sites.

Unit IV:

Disposal of solid waste by other methods: Thermal conversion technologies, Incineration, Pyrolysis gasification, environmental control system. Biological & Chemical conversion technologies, aerobic composting, anaerobic digestion, other biological and chemical transformation.

Unit V:

Solid waste Management — legislative trend and planning issues. Major legislations, government agencies, future trend in planning. Hazardous solid waste management, handling & Disposal. Disposal of Biomedical Waste, Demolition waste, E-Waste & Plastic Waste etc.

Course Outcomes:

Upon completion of the course, the students will be able to:

- CO 1: Explain the principles & concepts of waste management.
- CO 2: Apply various techniques in collecting the waste.
- CO 3: Apply various techniques of reducing the waste.
- CO 4: Apply various techniques in disposal of waste.
- CO 5: Plan an effective & efficient waste management system



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Text Books:

1. Text Book of Solid Wastes Management, Iqbal H. Khan and Naved Ahsan, CBS Publishers, 1st edition 2012
2. Integrated Solid Waste Management, Hilary Theisen and Samuel A, Vigil, George Tchobanoglous, McGraw Hill New York, 1993

Reference Books:

1. Environmental Engineering, Rowe, Peavy & Tchobanoglous, Tata McGraw Hill Publications, 2017
2. CPHEEO, Manual on Municipal Solid Waste management, Central Public Health and Environmental Engineering organization, Government of India, New Delhi, 2016
3. Solid waste Engineering, Vesilind P.A., Worrel H. W. and Reinhard, Thomson Learning Inc, 2003

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ANNEXURE – V

(Syllabus of OC Courses to be offered in conventional mode in VIth Semester (for 2019-2020 admitted batch))

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ANNEXURE – V

SYLLABUS OF OC COURSES (Conventional Mode) TO BE
OFFERED IN VI SEMESTER

Course Code:

Course Name: Building Services & Maintenance

L	T	P	C
2	1	-	3

Course Objectives:

1. To learn about building services required in a building.
2. To learn about fire fighting systems in buildings.
3. To understand planning and maintenance requirements of lifts in high rise buildings.
4. To understand water management and planning system in a building.
5. To learn maintenance of building services and management of related tasks.

Syllabus:

Unit I

Introduction: Introduction to primary services in a building, Type of services required to keep facility usable, planning of services. Organization structures of services management. Role and administrative functions of supervisors. Outline of the concept of carbon trading and self sustainable zero carbon building. Importance

Unit II

Fire Fighting: Standard fire, fire resistance, classification of buildings. Basic requirement of the works for fighting system, various components of the fire fighting system. Maintenance required of the system, fire fighting in high-rise buildings, commercial/industrial complexes. Public buildings, checklist for fire safety. Provision of NBC.

Unit III

Lifts/Elevators, Escalators: Legal formalities for elevators, various types of lifts, working mechanisms of lift and escalators. Indian standard codes for planning & installations of elevator, inspection & maintenance of lifts.

Unit IV

Plumbing Services Water Supply System: Basics of Plumbing systems. Requirement of Plumbing works, Agency. Activity flow chart for plumbing work. Quality checking of materials. Water supply and distribution system in high-rise building & other complexes, pumps and pumping mechanisms. Operation & maintenance of fittings & fixtures of water supply & sanitary. Do's & Don'ts for water pipe networks.

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Unit V

Maintenance and management of services: Telecommunication network, computer network LAN, Electrical network & appliances. Basics of single phase & three phase electrification, precautions and safety measures during electrification. Indian standard codes for electrical appliances & wiring operations & maintenance of network & appliances. Landscaping & Horticulture. Building maintenance management, applications of computer in service management. Flowcharts of air conditioning & heating. Centralised systems, monitoring and working of the equipments, Checklist of inspection, Performance testing. Water proofing. Damp proofing & Termite proofing. Working procedure & stages of work of water proofing for W.C., Bathrooms, Terrace, sloping roof, Basements, tanks. Use of chemicals for water proofing treatment.

Course Outcome:

Upon completion of the course, the students will be able to:

- CO1:** Identify various services required in a building.
- CO2:** Carry out planning of fire fighting system for a building.
- CO3:** Develop a management strategy for maintenance of building services in a building.
- CO4:** Design a sustainable building services plan for a building.

Reference Books:

1. Building services Design and Management by Jackie Partman, WileyBlackwell 2014.
2. Building Services Engineering by David V. Chadderton, Routledge 2013.



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Course Code:

Course Name: Sustainable Materials & Green Buildings

L	T	P	C
2	1	-	3

Course Objectives:

1. To expose the students to the concepts of sustainability in the context of building and conventional engineered building materials, such as Concrete, Bricks, and achieving the same through lower Carbon cements, Superior brick kilns and Recycled aggregate minimizing consumption of natural resources including water
2. To study the concepts of VOC and indoor air quality.
3. Exposing the student to concepts of embodied, Operational and Life Cycle Energy, Minimizing Energy consumption by optimal design, use of BIPV.
4. The course also intends to make student aware of ECBC, LEED, GRIHA etc.

Syllabus:

Unit-I

Embodied energy, Operational energy in Building and Life cycle energy. Ecological foot print, Bio-capacity and calculation of planet equivalent.

Unit-II

Role of Material: Carbon from Cement, alternative cements and cementitious material, Alternative fuel for cements for reduction in carbon emission. Sustainability issues for concrete. Role of quality, minimization of natural resource utilization, High volume fly ash concrete, geo-polymer concrete etc. concrete with alternative material for sustainability.

Unit-III

Reduction in water consumption in concrete, Recycled aggregate. Energy for grinding crushing of cement aggregate etc. and reduction. Operational energy in building role of materials and thermal conductivity, Clay Bricks, Types kilns, Comparative energy performance emission performance and financial performance. Indoor air quality.

Unit-IV

Paints, Adhesive and sealants for use in building, Volatile organic content (VOC) emission issues and indoor air quality for Sustainability and Health hazard. Operational energy reduction and net zero building. Optimization for design of building for energy efficiency and example of optimization through use of Evolutionary genetic algorithm.

Unit-V

Radiation budget, Surface water balance, Effects of trees and microclimatic modification through greening, Use of Building Integrated Photo Voltaic (BIPV) and other renewable energy in buildings, basic concepts and efficiency. Energy codes ECBC requirement, Concepts of OTTV etc. Green Performance rating, requirements of LEED, GRIHA.

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Course Outcomes:

Upon completion of the course, the students will be able to:

CO1: Apply the concepts of sustainability in the context of building and conventional engineered building materials.

CO2: Explain the Concepts of VOC and indoor air quality.

CO3: Apply the concepts of embodied, Operational and Life Cycle Energy, Minimizing Energy consumption by optimal design, use of BIPV.

CO4: Apply the guidelines of ECBC, LEED, GRHA while planning a building.

CO5: Use renewable energy sources in buildings.

Text Books:

1. Sustainable Construction: Green Building Design and Delivery, John Wiley & Sons, 2005.
2. Building Reuse: Sustainability, Preservation, and the Value of Design by Kathryn Rogers Merlino, University of Washington Press, 2018.

Reference Books:

1. Natural Design, Organic Architecture: Lessons for Building Green by Frank Lloyd Wright, Rizzoli; Illustrated edition



ANNEXURE – VI

**(Scheme & Syllabus 4th Sem B.Tech Civil
Engineering (2020-2021 onwards Admitted Batch))**



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Scheme of Examination
B.Tech. IV Semester (Civil Engineering)

For batches admitted in academic session 2020 – 21 onwards

S. No.	Subject Code	Category Code	Subject Name	Maximum Marks Allotted						Total Marks			Contact Hours per week			Mode of Teaching (Offline/Online)	Total Credits	Mode of Exam	
				Theory Slot			Practical Slot			End Sem Exam	Lab	Work & Sessional	Skill Based Mini Project	L	T				P
				End Term Evaluation		Continuous Evaluation		End Sem Exam											
				Proficiency in subject /course	Mid Sem	Quiz/Assign ment	Mid Sem	Assign ment	Lab	Work & Sessional	Skill Based Mini Project								
1.		BSC	Engineering Mathematics - III (BSC - 4)	10	20	20	-	-	-	-	-	3	-	-	3	100	3	Offline (3:0)	PP
2.	110411	DC	Geotechnical Engineering - I (DC - 6)	10	20	20	60	20	20	20	20	2	1	2	4	200	4	Blended (2:1)	PP
3.	110412	DC	Theory of Structures - I (DC - 7)	10	20	20	-	-	-	-	-	2	1	-	3	100	3	Offline (3:0)	PP
4.	110413	DC	Transportation Engineering (DC - 8)	10	20	20	60	20	20	20	20	2	1	2	4	200	4	Blended (2:1)	PP
5.	110414	DC	Water Resources Engineering (DC - 9)	10	20	20	-	-	-	-	-	2	1	-	3	100	3	Blended (2:1)	PP
6.	110415	DLC	Civil Drawing Lab (1) (2)	-	-	-	60	20	20	20	20	-	-	2	1	100	1	Offline (1:0)	SO
7.	100001	MC	Cyber Security	10	20	20	-	-	-	-	-	3	-	-	3	100	3	Online (3:0)	MCO
8.	20055A	LEC	Novel Engaging Courses	-	-	-	50	-	-	-	-	-	-	2	1	50	1	Interactive	SO
Total				300	60	120	120	230	60	60	60	14	4	8	22	950	22	-	-
9.	1000002	MAC	Biology for Engineers (Mandatory VAC)†	10	20	20	-	-	-	-	-	2	-	-	Grade	100	Grade	Online	MCO

†Proficiency in course/subject – includes the weightage towards ability/ skill/ competence /knowledge level /expertise attained /attendance etc. in that particular course/subject
‡The certification/marksheet will be issued separately by examination cell.

Theory	Mode of Teaching			Mode of Examination			Total Credits
	Blended		Lab	Theory		Lab	
	Offline	Online		A+O	MCO		
Offline	3	3	3	-	3	3	1
27%	14%	27%	14%	4%	68%	14%	4%
							22
							Credits %






Civil Engineering Department, MITS Gwalior

DEPARTMENT OF CIVIL ENGINEERING

SYLLABUS B.Tech Civil Engineering

2020 ONWARDS ADMITTED BATCHES



SEMESTER-IV

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Course Code: 110411

Course Name: Geotechnical Engineering - I

L	T	P	Credit
2	1	2	4

Course Objectives:

- 1) The students will get the basic knowledge about natural material like rocks and get acquainted with natural dynamic processes and their actions.
- 2) The students will know the significance of geological investigations for civil engineering projects and site selection.
- 3) To inculcate the basic knowledge of soil such as its identification and classification, determination of various engineering properties and its suitability as a foundation/subgrade material.
- 4) To develop an understanding of the relationships between physical characteristics and mechanical properties of soils by experimentally measuring them.
- 5) To explain role of water in soil behavior and how soil stresses, permeability and quantity of seepage including flow net are estimated.
- 6) To determine shear parameters and stress changes in soil due to foundation loads & estimate the magnitude and time-rate of settlement due to consolidation.
- 7) To apply the principles of soil mechanics in stability analysis of slopes and settlement calculations.

Syllabus:

Unit-I Engineering geology & soil properties

Introduction to geology, mineralogy, petrology – Three-fold classification of rocks and their characteristic features. Structural geology - Types and classification of structures (Joints, Unconformities, Folds and faults) and their effect on civil engineering projects.

Introduction – Types of soils, their formation & deposition, basic definitions and relationships - Three phase system. Index properties of soil and their determination. Relationship between volume weight, void ratio-moisture content, moisture content-specific gravity, and unit weight- air voids etc.

Plasticity Characteristics of soil & indices and their determination, use of consistency limits, Classification of soil based on particle size and consistency limits, unified soil classification systems, Indian standard soil classification system, general characteristics of soil in different groups.

Unit-II Soil Water and Consolidation:

Permeability of soil: Darcy law and its validity, Determination of permeability in laboratory and in field using various methods like constant head method, pumping tests etc. factors affecting permeability of soil, Seepage analysis – introduction, stream & potential functions, flow nets, uses of a flow net, Introduction to effective, neutral and total stresses, effect of water table, fluctuations of effective stress, effective stress in soils saturated by capillary action, seepage pressure, quick sand condition.

Consolidation – Introduction, Compressibility and consolidation, comparison between compaction and consolidation, initial, primary & secondary consolidation, spring analogy for primary consolidation, interpretation of consolidation test results, Terzaghi's Theory of consolidation, final settlement of soil deposits, Determination of consolidation settlement and secondary consolidation.

Unit-III Stress Distribution in Soils:

Stresses in soil – Introduction, stresses due to point load, line load, strip load, uniformly loaded circular area, rectangular loaded area, influence factors, isobars, Boussinesq's equation, westergaard's analysis, Newmark's influence chart. Contact pressure under rigid & flexible area, computation of displacements from elastic theory.

Unit – IV Shear Strength of Soils:

Mohr Circle and its characteristics, principal planes, relation between major and minor principal stresses, Mohr-

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Coulomb's theory, types of shear tests, direct shear test, merits of direct shear test, Triaxial compression test, test behaviour of UU, CU and CD tests, pore-pressure measurements, computation of effective shear strength parameters, unconfined compression test, vane shear test, critical void ratio, Liquefaction

Unit – V Stability of Slopes:

Introduction, Types of slopes and their failure mechanisms, factor of safety, analysis of Infinite and finite slopes, wedge failure, Swedish circle method, friction circle method, stability numbers and charts, Effect of ground water, Selection of shear strength parameters in slope stability analysis, Stability of Earth dams.

Course Outcomes:

Upon completion of the course, the students will be able to:

- CO1: Evaluate different properties of rocks & soil and its classification.
- CO2: Examine the flow and shear parameters & their effects on various types of soil.
- CO3: Determine the stress distribution & shear failure by various methods.
- CO4: Evaluate the shear strength parameter of soil by various methods.
- CO5: Analyse the stability of slopes using various methods.

Text Books:

1. Soil Mech. & Found. Engg., Dr. K.R. Arora, Std. Publishers Delhi, 7th Edition, 2014
2. Soil Mech. & Foundation, Dr. B.C. Punmia, Laxmi Publications, Delhi, 16th Edition, 2017
3. Soil Mech. & Found Engg., S.K. Garg, Khanna Publishers, Delhi, 1st Edition, 2003
4. Basic & Applied Soil Mechanics, Gopal Ranjan, New Age International Publishers, 2016
5. Parbin Singh., "Engineering and General Geology", S. K. Kataria and Sons, 2009

Reference Books:

1. Modern Geotech Engg. Dr. Aram Singh, IIT Publishers, Delhi, 8th Edition, 2016
2. Geotech Engg., C. Venkatramiah, New Age International Publishers, 16th Edition, 2018
3. Soil Testing for Engg., T.W. Lambe, John Wiley & Sons, Inc. 1969
4. Bangar, K.M, Principles of Engineering Geology, Standard Publishers Distributors, 1995, New Delhi

List of Experiment's:

1. Moisture Content Determination, Oven Drying Method.
2. Grain Size Analysis – Mechanical Method.
3. Grain Size Analysis – Hydrometer Method.
4. Liquid Limit, Plastic Limit, Shrinkage Limit Tests.
5. In-Place Density tests – Core Cutter Method, Sand Replacement Method.
6. Specific Gravity Tests.
7. Permeability Tests, Variable Head Method.
8. Compaction Test.
9. Unconfined Compression Test.
10. Direct Shear Test.
11. Triaxial Shear Test (UU)
12. Vane Shear Test.
13. Plate Load Test (Demonstration)
14. Consolidation Test.

Upon completion of practical course, the students will be able to:

- CO 1: Check physical properties of soil.
- CO 2: Check strength properties of soil.
- CO 3: Differentiate the flow properties and stresses of soil.
- CO 4: Check shear strength of soil.



Course Code: 110412

Course Name: Theory of Structure - I

L	T	P	Credit
2	1	0	3

Course Objectives:

- 1) To develop an understanding of the behavior of structure under serviceability load.
- 2) To understand the mechanics of the material behavior of different type of structures.
- 3) To understand the concepts of analysis of indeterminate structures by various classical methods.
- 4) To make student aware of different methods of structural analysis.

Syllabus:

Unit-I

Deflection of beams: Double Integration method. Area Moment Method and Slope - Deflection Method. Beam of variable cross section, M/EI diagram, Conjugate Beam Method.

Unit-II

Virtual work and Energy Principles: Principles of Virtual work applied to deformable bodies. Maxwell's Reciprocal theorems, Energy theorems, Application to pin jointed frames only.

Unit - III

Indeterminate Structures – I: Static and Kinematics indeterminacy, Analysis of Fixed and continuous beams by Theorem of three moments, Effect of sinking and rotation of supports.

Unit-IV

Indeterminate Structures – II: Analysis of beams and analysis of frames (with and without sway) by slope Deflection method.

Unit-V

Moment Distribution Method: Moment distribution method for analysis of beams and analysis of frames (without sway) Three hinged arches of different shapes, Eddy's Theorem. Two Hinged and Fixed Arches.

Course Outcomes:

Upon completion of the course, the students will be able to:

- CO 1: Classify different type of structures based on support conditions.
- CO 2: Explain various methods & principles for analysis of structures.
- CO 3: Apply various methods & principles for structural analysis.
- CO 4: Analyse various structures using various methods, principles & theorems.
- CO 5: Evaluate different methods of structural analysis.

Text Books:

1. Basic Structural Analysis, Reddy C. S., Tata McGraw Hill Publishing Company, 2017
2. Theory of Structures, S. Ramamrutham, R. Narayanan, Dhanpat Rai Publications, 9th edition, 2014
3. Theory of Structures, B.C. Punmia, Laxmi Publications, 2017

Reference Books:

1. Structural Analysis – A Unified classical and matrix Approach, Ghali A & Neville M,

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Chapman and Hall, New York, 6th edition, 2009

2. Intermediate structural analysis, Wang C.K., McGraw Hill, New York, 1984
3. Structural Analysis, Aslam Kassimali, C. L. Publisher, 2014
4. Structural Analysis, R. C. Hibbler, Pearson Publication, 2017



Course Code: 110413

Course Name: Transportation Engineering

L	T	P	Credit
2	1	2	4

Course Objectives:

- 1) To study the planning aspects of roads & highway.
- 2) To study the geometric design aspects of highway and road.
- 3) To know about pavement material and design.
- 4) To understand the construction process and methods of roads & highway.
- 5) To study about traffic characteristics and design of intersections.

Syllabus:

Unit – I Highway Development and Planning

Highway Development in India — Necessity for Highway Planning – Different Road Development Plans; Classification of Roads. Road Network Patterns — Highway Alignment-Factors affecting Alignment- Engineering Surveys.

Unit – II Highway Geometric Design

Importance of Geometric Design – Design controls and Criteria – Highway Cross Section Elements – Sight Distance Elements – Stopping Sight Distance, Overtaking Sight Distance and Intermediate Sight Distance – Design of Horizontal Alignment – Design of Super elevation and Extra widening – Design of Transition Curves – Design of Vertical alignment - Gradients- Vertical curves.

Unit – III Traffic Studies

Spot Speed Studies and Volume Studies, Speed and Delay Studies purpose, causes of delay, methods of conducting speed and delay studies, Origin and destination Studies (O & D): Various methods, collection and interpretation of data, Traffic Capacity Studies: Volume, density, basic practical and possible capacities, level of service, Parking Studies: Methods of parking studies, design of intersections at grade & grade separated.

Unit -IV

Highway Construction Materials: Aggregates and their types, physical and engineering properties, Fillers, Bitumen, Characteristics, Emulsions and cutbacks, Basic tests on all materials.

Design of Flexible & Rigid Pavements: Introduction, flexible pavement, factors affecting design and performance, stress in flexible pavement, design of flexible pavement as per IRC, rigid pavements – components & functions, factors affecting design & performance of CC pavements, stress in rigid pavement, type of joints, dowel bar, tie bar and its functionalities.

Unit – V Evaluation and Maintenance of Pavements

Pavement distress in flexible and rigid pavements, Pavement evaluation, structural evaluation, evaluation by deflection measurements, Strengthening of pavements, Types of maintenance, Importance of highway drainage, Surface and sub-surface drainage arrangements.

Course Outcomes:

Upon completion of the course, the students will be able to:

- CO 1: Explain the principles of highway planning & their geometrical design.
- CO 2: Evaluate physical properties of suitable highway engineering materials with drainage provisions.
- CO 3: Apply the concepts of traffic engineering in transportation planning.
- CO 4: Design pavements as per regulations.
- CO 5: Formulate the layers of pavement along with provisions of its drainage & maintenance.

Text Books:

- 1. Highway Engineering, S.K. Khanna & C.E.G. Justo, Nemchand Pub., 10th edition, 2018
- 2. Highway Engineering, Gurucharan Singh, Standard Publishers, 5th edition, 2006
- 3. Principles & Practices of Highway Engineering, L R Kadiyali, N B Lal, Khanna Publishers, 2016

Reference Books:

- 1. Principles of Pavement Design, E.J. Yoder & M.W. Witzech, Wiley India, 2nd edition, 2011
- 2. Highway Engineering, O' Flaherty, Butterworth-Heinemann, 4th edition, 2002
- 3. Principles of Practice of Highway Engg., Sharma & Sharma, Asia Publishing House, 1965
- 4. Analysis and Design of Pavements, Haung, Pearson, 2nd edition, 2004

List of Experiments:

- 1. Aggregate Crushing Value Test
- 2. Determination of Aggregate Impact Value
- 3. Determination of Los Angeles Abrasion Value
- 4. Determination of flakiness index and elongation index of aggregates.
- 5. Determination of California Bearing Ratio Value
- 6. Determination of Penetration Value of Bitumen
- 7. Determination of Viscosity of Bituminous Material
- 8. Determination of Softening Point of Bituminous Material
- 9. Determination of Ductility of the Bitumen
- 10. Determination of Flash Point and Fire Point of Bituminous Material
- 11. Determination of Bitumen Content by Centrifuge Extractor
- 12. Determination of Stripping Value of Road Aggregate
- 13. Determination of Marshall Stability Value for Bitumen.

Course Outcomes:

Upon completion of the practical course, the students will be able to:

- CO 1: Select suitable aggregate material by testing the physical properties.
- CO 2: Determine properties of bitumen and its grade.
- CO 3: Determine CBR value of material for subgrade and subsequent layers of pavement.
- CO 4: Design job mix formula for bituminous surface using Marshal Stability test

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Course Code: 110414

Course Name: Water Resources Engineering

L	T	P	Credit
2	1	0	3

Course Objectives:

- 1) To understand the water requirements of various types of crops.
- 2) To understand the different types of irrigation systems.
- 3) To plan the reservoir systems as per the requirements.
- 4) To understand the concepts of Khosla's and Bligh's theory & its applications.
- 5) To understand the concepts of Lacey's and Kennedy theory for design of canal systems.
- 6) To develop an understanding of various components of hydrological cycle, their behaviors & factors affecting it & solve problems on measurement on rainfall, infiltration, evaporation.
- 7) To understand concepts of Hydrometry & ground water hydrology.
- 8) To discuss the importance of estimation of runoff, analysis of rainfall data and various hydrographs and analyze various problems off runoff using various hydrograph theories.
- 9) To develop an understanding of various methods of flood estimation in general & flood frequency.

Syllabus:

Unit - I

Hydrology: Definition, Hydrological Cycle, Precipitation, Evaporation, Infiltration, Runoff, Estimation of Runoff, Empirical Formulae, Rainfall-Runoff relationships, Hydrometry, Methods of Stream Gauging, Rating Curves, Ground Water: Elements of Ground water Hydrology, Well Hydraulics, Equations of Ground Water flow, Solutions and applications.

Unit - II

Hydrographs & Hyetographs, Hydrographs analysis, Unit Hydrographs, Methods of constructing, Unit Hydrographs, S-curve Hydrograph, Synthetic unit Hydrograph, Flood and its estimation by different methods.

Unit-III Irrigation Water Requirement and Soil Water Crop Relationship:

Irrigation, Definition, Necessity, Advantages and disadvantages, Type and methods, Irrigation development.

Soil: Types and their occurrence, Suitability for irrigation purposes, Wilting, Coefficient and field capacity, Optimum water supply, Consumptive use and its determination. Irrigation methods - surface 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 rotation, Intensity of irrigation, Water logging-causes, effects & its prevention

Unit - IV Reservoir Planning and Canal Irrigation

Types of reservoir, Reservoir planning, Estimation of storage capacity by mass curve analyses, Economical height of dam, Reservoir sedimentation, Canal systems, Planning and layout of canal systems, Regime concept and tractive force method of channel design, Channel losses, Design of unlined and lined canals, Kennedy's and Lacey's silt theories, Typical canal section, Water-logging: Causes and effects, Remedial measures, Salinity, Land reclamation and Drainage.

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Unit – V Diversion works and Canal Regulation Structures

Elements of diversion works, Type of weirs and barrages, Weir design for surface and sub-surface flow, Bligh's, Lane's and Khosla's theories, Silt excluders and Silt ejectors. Canal regulation structure like Head & Cross regulations, falls, Escapes, Outlets, Their Need, Functions sketches.

Course Outcomes:

Upon completion of the course, the students will be able to:

- CO 1: Explain the concept of hydrology and hydrograph
- CO 2: Apply basic principles for measurement & forecasting of rainfall & runoff.
- CO 3: Analyse runoff hydrograph by various methods.
- CO 4: Analyse various requirements for an efficient irrigation project.
- CO 5: Design different components of irrigation system using different theories.
- CO 6: Plan an efficient, economical & safe irrigation system.

Text Books:

1. Engineering. Hydrology, K. Subramanya, Tata McGraw Hill Publ. Co. 4th edition, 2013
2. Hydrology & Water Resources Engineering, S. K. Garg, Khanna Publishers, 2016
3. Irrigation Engineering & Hydraulic Structures, Santosh Kumar Garg, Khanna Publishers, 2017
4. Irrigation, Water Power & Water Resources Engg., K.R. Arora, Standard Publishers Distributors, 2010

Reference Books:

1. Engineering. Hydrology, J. NEMEC, Prentice Hall, 1972
2. Hydrology for Engineers, Linsley, Kohler, Paulnus, Tata Mc Graw Hill, 2014
3. Engineering Hydrology, H. M. Raghunath, New Age International Publishers, 5th edition, 2015.
4. Irrigation, Water Resources & Water Power, Dr. P.N. Modi, Standard Book House, 9th edition, 2014
5. Irrigation Engineering by Varshney & Gupta, Vol I & II. Nemchand Publishers, 2007.



Course Code: 100415

Course Name: Civil Drawing Lab

L	T	P	Credit
0	0	2	1

Course Objectives:

- 1) To draw plan, elevation & section of various components of a building.
- 2) To prepare sketches of various components of building like doors, windows etc.
- 3) To expose students to use software's like AutoCAD in civil engineering drawing.

Syllabus:

List of Experiments:

1. One drawing sheet containing Foundations and Footing using AutoCAD
2. One drawing sheet containing Doors, Windows, Ventilators using AutoCAD
3. One drawing sheet containing Lintels, Trusses and Arches etc. using AutoCAD
4. One drawing sheet containing detailed planning of one room residential building
5. One drawing sheet containing detailed planning of multi rooms residential building
6. Drawing sheets one each of residential building using AutoCAD
7. One Drawing sheet of Institutional building using AutoCAD
8. One Drawing sheet of Commercial building using AutoCAD
9. One Drawing sheet of Hospital building using AutoCAD
10. Sketches of various building components i.e. floors, roof & roof covering
11. Sketches of various building components i.e. staircase

Course Outcomes:


Upon completion of the course, the students will be able to:

CO1: Attempt to draw different components of a building.

CO2: Produce plan, elevation & section of various components of a residential and institutional building.

CO3: Use AutoCAD software in civil engineering drawing.

CO4: Prepare drawing sheets of various types of buildings like residential, institutional, commercial etc



ANNEXURE – VII

(Suggestive List of Skill Based Mini Projects for
B.Tech IVth Semester Civil)

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Civil Engineering Department, MITS Gwalior *[Handwritten signature]* 47 | Page *[Handwritten signature]*

ANNEXURE – VII

Suggestive List of Skill Based Mini Projects for B.Tech IVth Semester

110411, Geotechnical Engineering - I:

1. Use of locally available waste materials as a soil stabilizer.
2. Improvement of swelling properties of black cotton soil using agricultural waste.
3. Effectiveness of modern reinforcing materials such as coir fibers, jute fibers, rubber tyre chips etc. in California Bearing Ratio based Flexible pavement design.
4. Study the Stress-strain behavior of soil mixed with poly propylene fibers using direct shear test.
5. Examine the variation in A-line curve of stabilized cohesive soil along with all the Atterberg's limits.
6. Identify the Swelling pressure of Black cotton soil and observed its usefulness as a foundation material of any single-storey building.

110413, Transportation Engineering:

1. Identification of black spots.
2. Safety audit & rectification of black spots.
3. Use of local materials in rigid pavement
4. Effect of long term ageing on the performance of bituminous mix.
5. Identification of pavement distress and its remediation.
6. Traffic census of urban roads.

110415, Civil Drawing Lab:

1. Drawing sheet of residential building (single & multi-storey) containing detailed plan.
2. Drawing sheet of industrial building containing detailed plan.
3. Drawing sheet of residential building (single & multi-storey) using Auto CAD
4. Drawing sheet of institute building using Auto CAD
5. Drawing sheet of commercial building using Auto CAD

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ANNEXURE – VIII

(Scheme & Syllabus 2nd Sem B.Tech Civil
Engineering (2021-2022 onwards Admitted Batch))

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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Scheme of Examination GROUP X: II Semester

B. Tech. II Semester (Civil Engineering)

For batches admitted in academic session 2020 – 21 onwards

S. No.	Subject Code	Category Code	Subject Name	Maximum Marks Allotted						Total Marks			Contact Hours per week			Mode of Teaching (Offline/ Online)	Mode of Exam	Total Credits
				Theory Slot		Practical Slot		End Sem Exam	Total Marks	L	T	P						
				End Term Evaluation	Continuous Evaluation	End Sem Exam	Continuous Evaluation						Lab Work & Sessional	Continuous Evaluation				
1.	10021	DC	Building Planning & Design (DC - 1)	10	20	20	-	-	-	100	3	-	-	3	Blended (2/1)	PP	3	
2.	10020	FSC	Basic Civil Engineering & Mechanics (FSC - 3)	10	20	20	-	-	-	100	2	1	-	3	Blended (2/1)	PP	3	
3.	10021	FSC	Basic Mechanical Engineering (ESC - 4)	10	20	20	-	-	-	100	2	1	-	3	Blended (2/1)	MICQ	3	
4.	10022	ESC	Basic Electrical & Electronics Engineering (ESC - 5)	10	20	20	60	20	20	200	2	1	2	4	Blended (2/1)	MICQ	4	
5.	10023	ESC	Basic Computer Engineering (ESC - 6)	10	20	20	60	20	20	200	2	1	2	4	Blended (2/1)	A-O	4	
6.	10024	ESC	Manufacturing Practices (ESC - 7)	-	-	-	60	20	20	100	-	-	2	1	Offline (1/0)	SO	1	
7.	10026	ESC	Basic Civil Engineering Lab (ESC - 8)	-	-	-	60	20	20	100	-	-	2	1	Offline (1/0)	SO	1	
Total				50	100	100	240	80	80	900	11	4	8	19				
8.	MEAC		Engineering Physics (Mandatory VACIB)	10	20	20	-	-	-	100	2	-	-	Grade	Online	MICQ	Grade	

Summer Internship Project - I (Institute Level) (Qualifier): Minimum two-week duration: Evaluation in III Semester.

The certification marksheet will be issued separately by examination cell.

Mode of Teaching				Mode of Examination				Total Credits
Offline	Online	Blended	Lab	Theory	Lab	Lab	Total Credits	
-	-	5	4	6	3	6	19	
-	-	26%	21%	32%	15%	21%	Credits %	

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Head of Department - *[Signature]*

Unit Engineering Department, MITS Gwalior

DEPARTMENT OF CIVIL ENGINEERING

SYLLABUS B.Tech Civil Engineering

2021 ONWARDS ADMITTED BATCHES

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1. A signature that appears to be "Anil" followed by a flourish.
2. The initials "DSY" written above a signature that appears to be "AS".
3. A signature that appears to be "A. B. S. K." with "Majhi" written below it.
4. The initials "MKS" written in a stylized font.

SEMESTER-II

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Course Code: 110211

Course Name: Building Planning & Design

L	T	P	Credit
3	0	0	3

Course Objectives:

1. To make aware the student with sustainability aspects of building.
2. To impart knowledge to students about significance of building bye-laws & rules & regulation regarding building planning.
3. To impart knowledge to students regarding specific consideration required to be considered under Indian condition for planning & designing of building.
4. To appraise students about the rules & consideration to get adequate ventilation, lighting & Sound insulation for improved energy efficiency of building.
5. To make students understand about various essential requirements of different type of building.
6. To make aware students about green building rating for enhanced sustainability.

Syllabus:

Unit I

Natural Environment & Built environment, Ecology, Ecosphere - sustainable development, Dimensions of sustainability. Built Environment & liveability, integrated approach in design, challenges in sustainable development. Green environment, expectations from green building, IGBC, USGBC, LEED- GRIHA, SVA, GRIHA.

Unit II

Building Bye - laws, Functions of local authority, Terminology i.e. (Building line, control line, FAR, light plane etc.) Principles underlying building bye- laws, classification of building, requirements of parts of Buildings, site section of building, orientation, factors affecting orientation, orientation criteria's for Indian conditions. Provisions of NBC.

Unit III

Principles of planning of buildings (Aspects, prospect, Furniture requirement, rooming, grouping, privacy circulation etc.), Principles of architectural composition (Unity, contrast, scale, proportion, balance, Rhythm, character, etc.), Massing, Sun and the Building, Sun path, Sun shading & devices, Design of sun shades.

Unit IV

Thermal insulation, Heat transfer in building. Thermal insulation materials, methods of thermal insulation ventilation: natural & artificial, necessity & functional requirement of ventilation, system of ventilation, types of mechanical ventilation, air conditioning, functional requirement of air conditioning, Essentials of air conditioning, acoustic and sound insulation, Behavior of sound acoustical defects, Sabine formula, acoustical design of various spaces, sound insulation methods & materials, illumination (natural & artificial)

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Unit V

Design and planning consideration for various types of building i.e. Residential Building, Education buildings, Hospitals & Dispensaries, Hotels, Commercial building, recreational buildings, government offices & other, standards specified by Bye-laws, various aspects of sustainability & energy efficiency applied to various types of Building, green building concept applied to various types of building.

Course Outcomes:

Upon completion of the course, the students will be able to:

- CO1: Explain basics of building planning & design.
- CO2: Describe sustainability principle, by laws & characteristics of thermal and sound insulation.
- CO3: Apply sustainability concepts & principles in planning & design of buildings.
- CO4: Evaluate environmental, sustainable & safety aspects of a building.
- CO5: Plan different types of buildings as per by laws & codal provisions.

Text Books:

1. Building Drawing (Built Environment), Sah, Kale and Pathi, Tata McGraw hill, 4th edition, reprint 2007
2. Building Planning, Designing and Scheduling, Gurucharan Singh, Standard Publisher, distribution, 2009
3. Building Design and Drawing, Mallik and Meo, Computech Publication Ltd New Asian; 5th edition 2009

Reference Books:

1. Building Design and drawing, Y.S.Sane, Standard Publisher, 2006
2. National Building Codes (Latest Edition), 2016 by Bureau of Indian Standards (Third Revision)
3. Building Construction, B.C.Punmia, Laxmi Publication, 11th edition, 2016



Course Code: 100020

Course Name: Basic Civil Engineering & Mechanics

L	T	P	Credit
3	0	0	3

Course Objectives:

1. To understand the utility of various types of building materials.
2. To understand the location, construction detail and suitability of various building elements.
3. To determine the location of object on ground surface.
4. To stabilize the position of various object.
5. To understand the effects of system of forces on rigid body in static conditions.
6. Analysis of determinate structure (beam & truss)

Syllabus:

Unit- I

Building Materials: Stones, bricks, cement, timber - types, properties, test & uses, Introduction of concrete properties & Laboratory tests on concrete, curing of concrete and mortar Materials.

Unit- II

Surveying & Positioning: Introduction to surveying, Survey stations, Measurement of distances- conventional and EDM methods, Measurement of directions by different methods, Measurement of elevations by different methods, reciprocal leveling.

Unit- III

Mapping & Sensing: Mapping details and contouring, Plane tables and related devices. Introduction of theodolite. Measurement of areas and volumes, application of measurements in quantity computations, Introduction of remote sensing and its applications.

Unit- IV

Forces and Equilibrium: Graphical and Analytical Treatment of Concurrent and non-concurrent coplanar forces, free body Diagram, Force Diagram and Bow's notations, Application of Equilibrium Concepts: Analysis of plane Trusses, method of joints, method of Sections. Frictional force in equilibrium problems.

Unit -V

Centre of Gravity and moment of Inertia: Centroid and Centre of Gravity, Moment of Inertia of Composite section, Radius of Gyration, Introduction to product of Inertia and Principle Axes. Support Reactions, Shear force and bending moment diagram for cantilever & simply supported beam with concentrated, distributed load and Couple.

Course Outcomes:

Upon completion of the course, the students will be able to:

CO1: Explain concepts and terminologies of building materials, surveying and mechanics.

CO 2: Apply various methods for surveying and mechanics.

CO 3: Determine the location, area and volume of objects on ground surface.

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CO4: Solve the problems of surveying and mechanics by using various methods.

CO5: Analyse the effects of system of forces on rigid bodies in static conditions.

Text Books:

1. Surveying, Vol - 1, Punmia B.C., Laxmi Publications, 17th edition, 2016
2. Building Material, B. C. Punmia, Laxmi Publications, 2016
3. A textbook of Engineering Mechanics, D. S. Kumar, Katsons Publications, 2013

Reference Books:

1. Basic Civil Engineering, S. Ramamrutam & R. Narayan, Dhanpat Rai Pub., 3rd edition, 2013
2. Applied Mechanics, Prasad I.B., Khanna Publication 17th edition, 1996
3. Surveying, Duggal, Tata McGraw Hill New Delhi, 4th edition, 2013
4. Engineering Mechanics - Statics & Dynamics, R.C. Hibbler, Pearson Publications, 14th edition, 2015
5. Engineering Mechanics - statics dynamics, A. Boresi & Schmidt, Cengage learning, 1st edition, 2008.
6. Applied Mechanics, R.K. Rajput, Laxmi Publications, 3rd edition, 2016

A series of handwritten signatures and initials in black ink, arranged horizontally across the page. From left to right, there are approximately seven distinct marks, including names like 'Anil', 'A.S.', 'Raj', and 'K.K.S.'.

Course Code: 100026

Course Name: Basic Civil Engineering Lab

L	T	P	Credit
0	0	2	1

Course Objectives:

1. To perform the chain & tape surveying
2. To perform the survey work using various types of compass.
3. To determine the location of object on ground surface.
4. To determine the properties of cement
5. To determine the properties of concrete
6. To determine the properties of bricks.

List of Experiments:

1. Measurement of distance by chain or tape.
2. Chain and tape survey of given area.
3. Measurement of direction by prismatic compass & surveyor's compass.
4. Calculation of distance between two inaccessible points by prismatic compass
5. Chain & compass traverse
6. Exercise of differential leveling by dumpy level.
7. Exercise of flying levelling by dumpy level.
8. Demonstration of theodolite.
9. Measurement of horizontal angle by theodolite.
10. Determination of standard consistency of cement by vicat apparatus.
11. Determination of initial setting time & final setting time of cement.
12. Determination of workability of cement concrete by slump cone test.
13. Determination of compressive strength of cement concrete.
14. Determination of compressive strength of bricks.
15. Determination of water absorption of bricks.

Text Books:

4. Surveying. Vol. – 1, Punmia B.C., Laxmi Publications, 17th edition, 2016
5. Building Material, B. C. Punmia, Laxmi Publications, 2016

Reference Books:

1. Basic Civil Engineering, S. Ramamrutam & R. Narayan, Dhanpat Rai Pub. 3rd edition, 2013
2. Surveying, Duggal, Tata McGraw Hill New Delhi, 4th edition, 2013

Course Outcomes:

Upon completion of the course, the students will be able to:

CO1: Follow the guidelines for field surveying.

CO2: Follow the working principles of survey instruments for measurements.

CO3: Measure the horizontal distances, difference in elevation and angles of various points

CO4: Interpret survey data and compute areas.

CO5: Determine various properties of cement, concrete & bricks

ANNEXURE – IX

(Suggestive List of Skill Based Mini Projects for
B.Tech IInd Semester Civil)

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ANNEXURE – IX

Suggestive List of Skill Based Mini Projects for B.Tech IInd Semester

100026, Basic Civil Engineering Lab:

1. Survey of different areas using compass
2. Determination of location of object on ground surface.
3. Area volume calculations using traversing
4. Determination of various properties of different types of cement.
5. Determination of various properties of different type of bricks
6. Classification of different types of bricks.

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ANNEXURE – X
(Revised Syllabus of EEES Course)

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ANNEXURE – X

Revised Syllabus of EEES Course

Course Code: 100015

Course Name: Energy, Ecology, Environment & Society

L	T	P	Credit
3	0	0	3

Course Objectives:

1. To create awareness about global energy status, climate issues and sustainable development for development of society using new and renewable energy resources for power needs
2. To generate an understanding of human relationships, perceptions and policies towards environment
3. Focus on design and technology for improving environmental quality
4. To develop moral values and morals to conduct efficiently and ethically in society

Syllabus:

Unit 1: Sources of energy and its conversion: Renewable and non-renewable energy, Solar Energy, solar water heating, Hydro, wind, biomass, geothermal, tidal and nuclear energy, Fossil fuels, thermal power station basic concepts. Current Indian and global scenario of energy, role of energy in economic and social development and social transformation. Energy Policies: National level and State level policy and International policy of G-8, G-20, OPEC and European countries.

Unit 2: Sustainability: Introduction, Need and concept of sustainability, Sustainable development goals, Social-environmental and economic sustainability concepts, TBM, Sustainable development, Nexus between Technology and Sustainable development, Challenges for Sustainable Development. Multilateral environmental agreements and Protocols – Kyoto Protocol, Clean Development Mechanism (CDM), Green Engineering, Sustainable Urbanisation.

Unit 3: Ecology: Ecosystems, concept, components, types, Atmosphere, hydrosphere, lithosphere, biosphere, cycles in Ecosystem, Water, Carbon, Nitrogen, Biodiversity, threats and conservation, Producers, composers and decomposers, Energy and matter flow, Ecological succession, Food chains webs and ecological pyramids, Characteristics, structures and functions of ecosystems such as Forest, Grassland, Desert, Aquatic ecosystems. Community ecology- Characteristics, frequency, life forms, and biological spectrum, Ecosystem structure, Biotic and a-biotic factors, food chain, food web, ecological pyramids; Population ecology

Unit 4: Environment: Air pollution, causes, classifications, adverse effects, greenhouse gases and effects, present status, Global warming causes and effects, acid rain, ozone layer depletion & climate change and its impact, Mechanism for reduction of carbon,


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carbon credit, carbon trading, emission trading, Indian initiatives of reduction in greenhouse gases, Impact of waste on society, Introduction to management of municipal solid waste, E-waste, Indian initiatives in management of waste. Need of wastewater recycling & reuse, Introduction to process of wastewater recycling & reuse. Water quality standards.

Unit 5: Values and ethics: Definition, Sources, and approaches to ethics, Social values and individual attitudes, Work ethics and work values, philosophical and Social ethics, human values and morals, business ethics, self-concept and Johari Window, emotional intelligence, social intelligence, self-development, Environmental ethics.

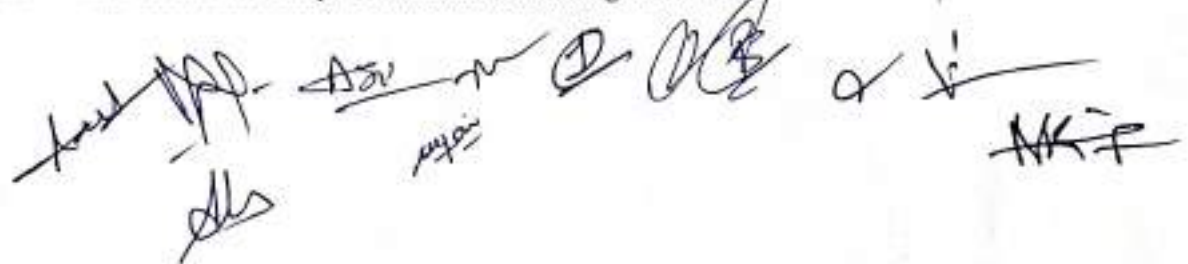
Course Outcomes:

Upon completion of the course, the students will be able to:

- CO 1. Describe various energy resources, their conversion to electrical power and role in technological & economic development.
- CO 2. Apply the basic concepts of sustainable engineering practices.
- CO 3. Recognize the impact of pollution on the ecosystem and control policies adopted at national/international levels.
- CO 4. Illustrate the concepts of ecosystems and their conservation.
- CO 5. Solve practical problems of society in a sustainable and ethical manner.
- CO 6. Fulfill professional duties keeping in mind the environmental safety, health, and welfare of public.

Text Books:

1. Cunningham WP and MA; Principles of Environment Sciences; Tata McGraw Hill (TMH)
2. Allen, D. T. and Shonnard, D. R., Sustainability Engineering: Concepts, Design and Case Studies. Prentice Hall.
3. Pandey, S.N. & Mishra, S.P. Environment & Ecology, 2011, Ane Books, Pvt. Ltd, New Delhi
4. Sivakumar; Energy Environment & Ethics in Society; TMH
5. Bala Krishnamoorthy; "Environmental management"; PHI

A series of handwritten signatures in black ink, arranged horizontally across the page. The signatures vary in style and legibility, with some appearing to be initials or names. One signature on the right side is clearly identifiable as 'AKIP'.

ANNEXURE – XI

(CO Attainment for Jan – June 2021 & April –
September 2021 Session)

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Civil Engineering Department, MITS Gwalior
AK *AK*
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ANNEXURE - XI

CO Attainment & Gap Analysis Jan - June 2021 (II to IV year) & April - September 2021 (I year)

Session

CO Attainment for Jan - June 2021

Course Code & Name	Course Outcomes	Direct CO Attainment %	Direct CO Attainment at Level	Indirect CO Attainment at %	Indirect CO Attainment Level	Overall CO Attainment Level	Target Attainment at Level	Gap in Attainment	Status of CO Attainment	Action Taken
100020 Basic Civil Engineering & Engineering Mechanics (Civil)	CO 1	55.75	1.57	77.78	3	-1.86	2.5	0.64	Not Attained	More quiz and assignment, also extra remedial classes will be conducted.
	CO 2	72.00	3	79.26	3	3.00	2.5	-0.50	Attained	
	CO 3	74.50	3	78.15	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards
	CO 4	68.25	2.82	79.26	3	2.86	2.5	-0.36	Attained	
	CO 5	65.75	2.57	77.04	3	2.66	2.5	-0.16	Attained	
100020 Basic Civil Engineering & Engineering Mechanics (Civil - Practical)	CO 1	64.00	2.40	75.10	3	2.52	2.5	-0.02	Attained	
	CO 2	64.00	2.40	70.28	3	2.52	2.5	-0.02	Attained	
	CO 3	64.00	2.40	73.90	3	2.52	2.5	-0.02	Attained	
	CO 4	64.00	2.40	72.69	3	2.52	2.5	-0.02	Attained	
	CO 5	64.00	2.40	75.10	3	2.52	2.5	-0.02	Attained	Increment in level can be considered from next semester onwards
100020 Basic Civil Engineering & Engineering Mechanics (Mechanics)	CO 1	80.00	3	68.31	2.83	2.97	2.5	-0.47	Attained	
	CO 2	56.50	3	66.07	2.66	2.93	2.5	-0.43	Attained	
	CO 3	77.50	3	68.31	2.66	2.93	2.5	-0.43	Attained	Increment in level can be considered from next semester onwards
	CO 4	82.00	3	66.12	2.61	2.92	2.5	-0.42	Attained	
	CO 5	85.00	3	67.21	2.72	2.94	2.5	-0.44	Attained	
100020 Basic Civil Engineering & Engineering Mechanics (Mechanics)	CO 1	77.50	3	64.81	2.48	2.90	2.5	-0.40	Attained	
	CO 2	81.00	3	64.81	2.48	2.90	2.5	-0.40	Attained	Increment in level can be considered from next semester onwards
	CO 3	74.00	3	64.81	2.48	2.90	2.5	-0.40	Attained	
	CO 4	70.00	3	61.11	2.11	2.82	2.5	-0.32	Attained	



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	CO-5	75.50	3	57.41	1.74	2.75	2.5	-0.25	Attained	Increment in level can be considered from next semester onwards
(Automobile)	CO-5	75.50	3	57.41	1.74	2.75	2.5	-0.25	Attained	Increment in level can be considered from next semester onwards
1100201 Basic Civil Engineering & Mechanics-I (Practical)	CO-1	72.50	3	70.90	3	3.00	2.5	-0.50	Attained	More problems on principle & analysis of basic civil mechanics problems needed to be given in the 1st mid sem evaluation for appropriate CO coverage
	CO-2	72.00	3	73.54	3	3.00	2.5	-0.50	Attained	
	CO-3	58.00	1.80	73.54	3	2.04	2.5	0.46	Not Attained	
	CO-4	48.00	0	73.02	3	0.60	2.5	1.90	Not Attained	
	CO-5	90.50	1.05	73.54	3	1.44	2.5	1.06	Not Attained	
110211 Building Planning & Design	CO-1	92.25	3	82.11	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards
	CO-2	86.80	3	78.05	3	3.00	2.5	-0.50	Attained	
	CO-3	86.68	3	76.42	3	3.00	2.5	-0.50	Attained	
	CO-4	78.67	3	78.05	3	3.00	2.5	-0.50	Attained	
	CO-5	87.83	3	76.42	3	3.00	2.5	-0.50	Attained	
110402 Geotechnical Engineering	CO-1	96.13	3	74.56	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards
	CO-2	89.38	3	68.42	2.84	2.97	2.5	-0.47	Attained	
	CO-3	93.88	3	68.42	2.84	2.97	2.5	-0.47	Attained	
	CO-4	93.00	3	66.67	2.66	2.93	2.5	-0.43	Attained	
	CO-5	92.25	3	68.86	2.88	2.98	2.5	-0.48	Attained	
110403 Fluid Mechanics-I (Practical)	CO-1	88.00	3	70.95	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards by giving advance level practice problems
	CO-2	88.00	3	70.00	3	3.00	2.5	-0.50	Attained	
	CO-3	87.00	3	68.57	2.85	2.97	2.5	-0.47	Attained	
	CO-4	88.00	3	68.57	2.85	2.97	2.5	-0.47	Attained	
110403 Fluid Mechanics-I	CO-1	91.38	3	75.34	3	3.00	2.5	-0.50	Attained	Increment in level can be considered
	CO-2	89.65	3	73.97	3	3.00	2.5	-0.50	Attained	
	CO-3	91.22	3	70.78	3	3.00	2.5	-0.50	Attained	
	CO-4	90.59	3	73.52	3	3.00	2.5	-0.50	Attained	
	CO-5	84.33	3	77.60	3	3.00	2.5	-0.50	Attained	
110403 Fluid Mechanics-I (Practical)	CO-6	81.00	3	72.60	3	3.00	2.5	-0.50	Attained	By giving advance level practice problems level may increase
	CO-1	64.00	2.40	75.49	3	2.52	2.5	-0.02	Attained	
	CO-2	64.00	2.40	73.04	3	2.52	2.5	-0.02	Attained	
	CO-3	64.00	2.40	74.51	3	2.52	2.5	-0.02	Attained	
CO-4	64.00	2.40	70.59	3	2.52	2.5	-0.02	Attained		



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CO	72.95	3	1.00	2.3	-0.50	Increment in level can be considered from next semester onwards by giving advance level practice problems.
110404 Structural Analysis	CO 1	88.82	3	1.00	2.3	Attained
	CO 2	89.65	3	1.00	-0.50	Attained
	CO 3	89.18	3	1.00	-0.50	Attained
	CO 4	90.85	3	2.99	-0.49	Attained
	CO 5	90.26	3	1.00	-0.50	Attained
	CO 6	93.00	3	3.00	-0.50	Attained
110406 Machine Design Engineering	CO 1	86.00	3	3.00	-0.50	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	91.00	3	1.00	-0.50	Attained
	CO 3	91.00	3	3.00	-0.50	Attained
	CO 4	91.00	3	3.00	-0.50	Attained
	CO 5	85.00	3	1.00	-0.50	Attained
	CO 6	87.00	3	3.00	-0.50	Attained
110407 Survey Practice Lab (Practical)	CO 1	96.00	3	2.98	-0.48	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	92.00	3	2.85	-0.47	Attained
	CO 3	92.00	3	2.71	-0.44	Attained
	CO 4	92.00	3	2.75	-0.45	Attained
	CO 5	92.00	3	2.80	-0.46	Attained
	CO 6	92.00	3	2.75	-0.45	Attained
110611 Solid Waste Management & Environmental Engineering (H.C.E.)	CO 1	79.34	3	3.00	-0.50	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	83.36	3	1.00	-0.50	Attained
	CO 3	86.36	3	3.00	-0.50	Attained
	CO 4	83.27	3	3.00	-0.50	Attained
	CO 5	88.75	3	3.00	-0.50	Attained
	CO 6	79.75	3	3.00	-0.50	Attained
110612 Solid Waste Management	CO 1	62.40	2.24	2.39	0.11	Not Attained
	CO 2	75.30	3	1.00	-0.50	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 3	72.40	3	1.00	-0.50	Attained
	CO 4	71.50	3	2.97	-0.47	Attained
	CO 5	71.50	3	2.85	-0.47	Attained

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110613- Construction Planning & Management	CO 1	86.00	3	77.55	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	83.69	3	75.49	3	3.00	2.5	-0.50	Attained	
	CO 3	84.31	3	71.57	3	3.00	2.5	-0.50	Attained	
	CO 4	76.50	3	71.57	3	3.00	2.5	-0.50	Attained	
	CO 5	75.30	3	71.57	3	3.00	2.5	-0.50	Attained	
110614 Railways, Airport & Tunnel Engineering	CO 1	76.43	3	80.00	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	70.27	3	80.00	3	3.00	2.5	-0.50	Attained	
	CO 3	73.91	3	80.00	3	3.00	2.5	-0.50	Attained	
	CO 4	80.78	3	80.00	3	3.00	2.5	-0.50	Attained	
	CO 5	94.57	3	73.33	3	3.00	2.5	-0.50	Attained	
100007- Disaster Management	CO 1	96.85	3	76.84	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	94.73	3	76.84	3	3.00	2.5	-0.50	Attained	
	CO 3	96.49	3	75.09	3	3.00	2.5	-0.50	Attained	
	CO 4	96.48	3	74.04	3	3.00	2.5	-0.50	Attained	
	CO 5	95.00	3	75.09	3	3.00	2.5	-0.50	Attained	
110607- Minor Project - II	CO 1	88.00	3	76.47	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	88.00	3	77.12	3	3.00	2.5	-0.50	Attained	
	CO 3	72.00	3	75.16	3	3.00	2.5	-0.50	Attained	
	CO 4	80.00	3	75.82	3	3.00	2.5	-0.50	Attained	
	CO 5	72.00	3	76.80	3	3.00	2.5	-0.50	Attained	
900117- Numerical Methods in Engineering	CO 1	80.92	3	86.11	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	80.51	3	75.00	3	3.00	2.5	-0.50	Attained	
	CO 3	73.92	3	77.78	3	3.00	2.5	-0.50	Attained	
	CO 4	75.00	3	80.56	3	3.00	2.5	-0.50	Attained	
900118 Manufacture Management	CO 1	89.00	3	71.2	3	3.00	2.5	-0.50	Attained	Increment in level can be considered from next semester onwards by giving advance level practice problems.
	CO 2	82.00	3	65.6	2	2.80	2.5	-0.30	Attained	
	CO 3	86.00	3	68.8	2	2.80	2.5	-0.30	Attained	
	CO 4	83.00	3	66.4	2	2.80	2.5	-0.30	Attained	



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CO Attainment for April – September 2021

Course Code & Name	Course Outcomes	Direct CO Attainment %	Direct CO Attainment Level	Indirect CO Attainment %	Indirect CO Attainment Level	Overall CO Attainment Level	Target Attainment Level	Gap in Attainment	Status of CO Attainment	Action Taken
100020: Basic Civil Engineering & Engineering Mechanics (Civil)	CO 1	55.75	1.50	77.78	3	1.80	2.50	0.70	Not Attained	More quiz and assignment, also extra remedial classes will be conducted.
	CO 2	72.00	3.0	79.26	3	3.00	2.50	-0.50	Attained	
	CO 3	74.50	3.0	78.15	3	3.00	2.50	-0.50	Attained	
	CO 4	68.25	2.80	79.26	3	2.84	2.50	-0.34	Attained	Increment in level can be considered from next semester onwards
	CO 5	65.75	2.54	77.04	3	2.60	2.50	-0.10	Attained	
110211: Building Planning & Design	CO 1	93.55	3	82.11	3	3.00	2.50	-0.50	Attained	
	CO 2	86.80	3	78.05	3	3.00	2.50	-0.50	Attained	
	CO 3	86.68	3	76.42	3	3.00	2.50	-0.50	Attained	Increment in level can be considered from next semester onwards
	CO 4	78.67	3	78.05	3	3.00	2.50	-0.50	Attained	
	CO 5	87.83	3	76.42	3	3.00	2.50	-0.50	Attained	
100021: Basic Mechanical Engineering	CO 1		2.70		2.30	2.62	2.00	-0.62	Attained	
	CO 2		2.00		2.10	2.02	2.00	-0.02	Attained	
	CO 3		2.70		2.10	2.58	2.00	-0.58	Attained	Increment in level can be considered from next semester onwards
	CO 4		2.10		2.20	2.12	2.00	-0.12	Attained	
	CO 5		2.10		2.20	2.12	2.00	-0.12	Attained	
	CO 6		1.93			2.30	2.00	0.00	Attained	
100022: Basic Electrical & Electronics	CO 1	93.19	3	88.00	3	3.00	2.50	-0.50	Attained	1. Micro assignment & tutorial classes should
	CO 2	80.70	3	87.00	3	3.00	2.50	-0.50	Attained	






Head of Department
 In-charge
 Head of Department
 Head of Department

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Engineering	CO 3	91-40	3	89.80	3	3.00	2.50	-0.50	Attained	he conducted.
	CO 4	86-40	3	91.00	3	3.00	2.50	-0.50	Attained	2. To support the CO, conceptual questions should be solved in tutorial classes
	CO 5	79-40	3	92.50	3	3.00	2.50	-0.50	Attained	
	CO 1	78.00	3	85.00	3	3.00	2.50	-0.50	Attained	
	CO 2	82.65	3	86.00	3	3.00	2.50	-0.50	Attained	
	CO 3	67.50	2.70	79.00	3	2.76	2.50	-0.26	Attained	Increment in level can be considered from next semester onwards
	CO 4	71.75	3	81.00	3	3.00	2.50	-0.50	Attained	
	CO 5	76.75	3	84.00	3	3.00	2.50	-0.50	Attained	
	CO 6	76.00	3	86.00	3	3.00	2.50	-0.50	Attained	
	CO 1		2.85		2.30	2.72	2.00	-0.72	Attained	
	CO 2		2.45		2.30	2.42	2.00	-0.42	Attained	
	CO 3		2.70		2.37	2.63	2.00	-0.63	Attained	
	CO 4		2.50		2.33	2.47	2.00	-0.47	Attained	
	CO 5		2.90		2.24	2.77	2.00	-0.77	Attained	
	CO 6		1.95		2.29	2.02	2.00	-0.02	Attained	
	CO 1	64-00	2.40	75.10	3	2.52	2.50	-0.02	Attained	
	CO 2	64.00	2.40	76.25	3	2.52	2.50	-0.02	Attained	
	CO 3	64.00	2.40	73.90	3	2.52	2.50	-0.02	Attained	
	CO 4	64.00	2.40	72.69	3	2.52	2.50	-0.02	Attained	
	CO 5	64.00	2.40	75.10	3	2.52	2.50	-0.02	Attained	
	CO 1	81.95	3	79.66	3	3.00	2.50	-0.50	Attained	
	CO 2	81.80	3	80.50	3	3.00	2.50	-0.50	Attained	
	CO 3	78.75	3	73.50	3	3.00	2.50	-0.50	Attained	
	CO 4	81.75	3	74.60	3	3.00	2.50	-0.50	Attained	
100020: Basic Civil Engineering & Engineering Mechanics (Civil - Practical)										
100022: Basic Electrical & Electronics Engineering (Practical)										







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	CO-5	75.40	3	73.86	3	3.00	2.50	-0.50	Attained
100023: Basic Computer Engineering (Practical)	CO-1	81.75	3	85.00	3	3.00	2.20	-0.80	Attained
	CO-2	80.13	3	86.00	3	3.00	2.20	-0.80	Attained
	CO-3	71.38	3	74.00	3	3.00	2.20	-0.80	Attained
	CO-4	70.88	3	72.00	3	3.00	2.20	-0.80	Attained
	CO-5	61.13	2.10	74.00	3	2.28	2.20	-0.08	Attained
	CO-6	71.75	3	73.00	3	3.00	2.20	-0.80	Attained
Increment in level can be considered from next semester onwards									






Dr. Anand K. Singh
 Dr. Anand K. Singh
 Dr. Anand K. Singh
 Dr. Anand K. Singh

ANNEXURE – XII

(Curriculum Feedback Analysis)

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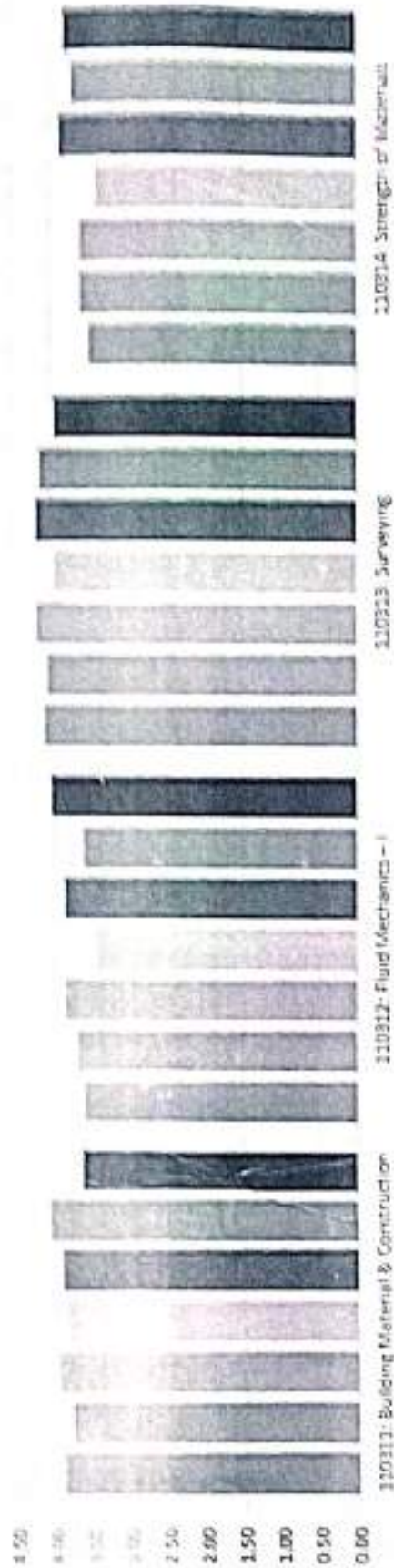
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ANNEXURE – XII (a)

CURRICULUM FEEDBACK ANALYSIS FROM STAKEHOLDERS

A1. CURRICULUM FEEDBACK ANALYSIS FROM STUDENTS – (UG Second Year) – Dec 2021

COURSE CONTENT FEEDBACK - UG SECOND YEAR



- 1. The course is well structured
- 2. The syllabus units are balanced
- 3. The learning material is available to you
- 4. The content was clear and easy to understand
- 5. The course materials are well adapted for present needs
- 6. The course meets your career expectations
- 7. The course will be useful to meet your higher studies/future aspirations.







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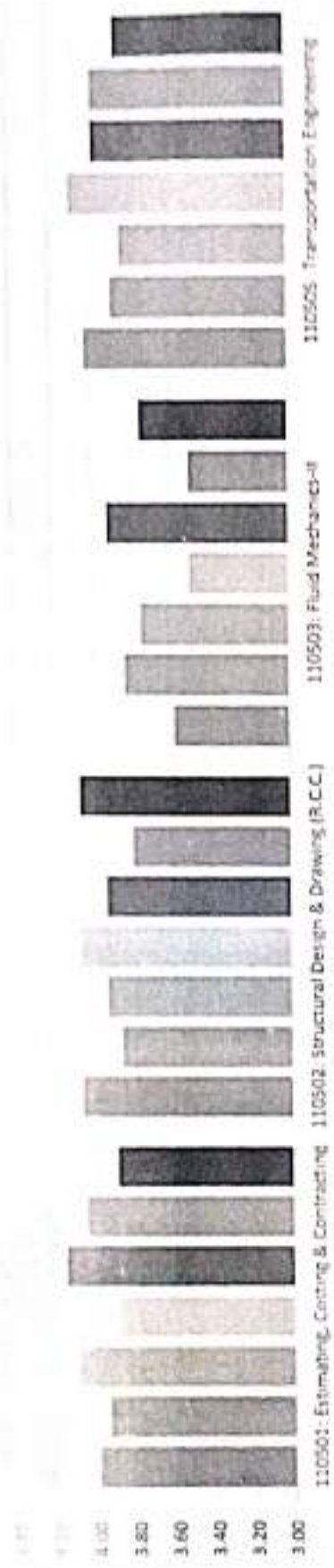
	110311	110312	110313	110314
1. The course is well designed	3.89	3.58	4.09	3.68
2. The syllabus units are balanced	3.78	3.67	4.04	3.59
3. The learning material was available to you	3.94	3.83	4.18	3.59
4. The content was clear and easy to understand	3.83	3.42	3.95	3.79
5. The course was relevant and updated for present needs	3.89	3.83	4.18	3.85
6. The course meets your career expectations	4.06	3.58	4.34	3.99
7. The course will be useful to meet your higher studies/future aspirations.	3.61	4.00	3.95	3.79

Subjects	Mention the course / contents which in your opinion is outdated & needs to be removed.	Name course / contents which needs to be updated.	Is any new course required to meet current needs?
110311: Building Material & Construction	Staircases	Building Designing, Advancements	Software, Concrete Technology
110312: Fluid Mechanics - I	No	Give practical examples for well understanding and visualize	Yes

~~part of~~ *part of* *110311* *110312* *110313* *110314*
110311 *110312* *110313* *110314*
110311 *110312* *110313* *110314*

A2. CURRICULUM FEEDBACK ANALYSIS FROM STUDENTS – (UG Third Year) – Dec 2021

COURSE CONTENT FEEDBACK - UG THIRD YEAR



- 1. The course is well designed
- 2. The syllabus units are balanced
- 3. The learning material was available to you
- 4. The content was clear and easy to understand
- 5. The course was relevant and updated for present needs
- 6. The course meets your career expectations
- 7. The course will be useful to meet your higher studies/future aspirations.








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	110301: Estimating, Costing & Contracting	110302: Structural Design & Drawing (R.C.C.)	110303: Field Mechanics- II	110304: Transportation Engineering
1. The course is well designed	4.55	4.07	3.55	4.02
2. The syllabus units are balanced	3.55	3.87	3.83	3.50
3. The learning material was available to you	4.11	3.03	3.75	3.84
4. The content was clear and easy to understand	3.50	4.07	3.50	4.00
5. The course was relevant and updated for present needs	4.16	3.03	3.02	3.08
6. The course meets your career expectations	4.05	3.80	3.50	3.55
7. The course will be useful to meet your higher studies future aspirations.	3.50	4.07	3.75	3.50

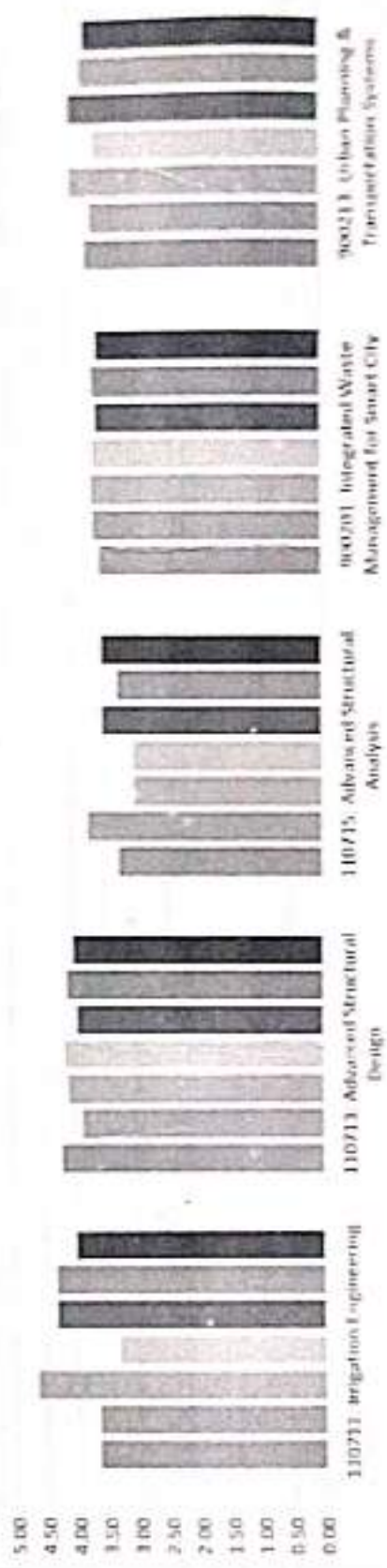
Mention the course / contents which in your opinion is outdated & needs to be removed.	Name course / contents which needs to be updated.	Is any new course required to meet current needs?
None	Field Mechanics	No



 The above mentioned course is outdated and needs to be removed.

A3. CURRICULUM FEEDBACK ANALYSIS FROM STUDENTS – (UG Final Year) – Dec 2021

COURSE CONTENT FEEDBACK - UG Final YEAR



- 1. The course is well designed
- 2. The teaching material was available to you
- 3. The course was relevant and updated for present needs
- 4. The course will be useful to you in your future studies/future applications
- 5. The syllabus units are balanced
- 6. The content was clear and easy to understand
- 7. The course meets your career expectations

Feedback - 110211, 110213, 110215, 900213

Prof. Dr. R. B. Singh

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	110711: Irrigation Engineering	110713: Advanced Structural Design	110715: Advanced Structural Analysis	900201: Integrated Waste Management for Smart City	900213: Urban Planning & Transportation Systems
1. The course is well designed	3.67	4.22	3.25	3.53	3.73
2. The syllabus units are balanced	3.67	3.89	3.75	3.63	3.64
3. The learning material was available to you	4.67	4.11	3.00	3.66	3.95
4. The content was clear and easy to understand	3.33	4.17	3.00	3.63	3.59
5. The course was relevant and updated for present needs	4.33	3.94	3.50	3.58	3.95
6. The course meets your career expectations	4.33	4.11	3.25	3.63	3.77
7. The course will be useful to meet your higher studies/future aspirations.	4.00	4.00	3.50	3.55	3.73

Mention the course / contents which in your opinion is outdated & needs to be removed.	Name course / contents which needs to be updated.	Is any new course required to meet current needs?
None	None	None



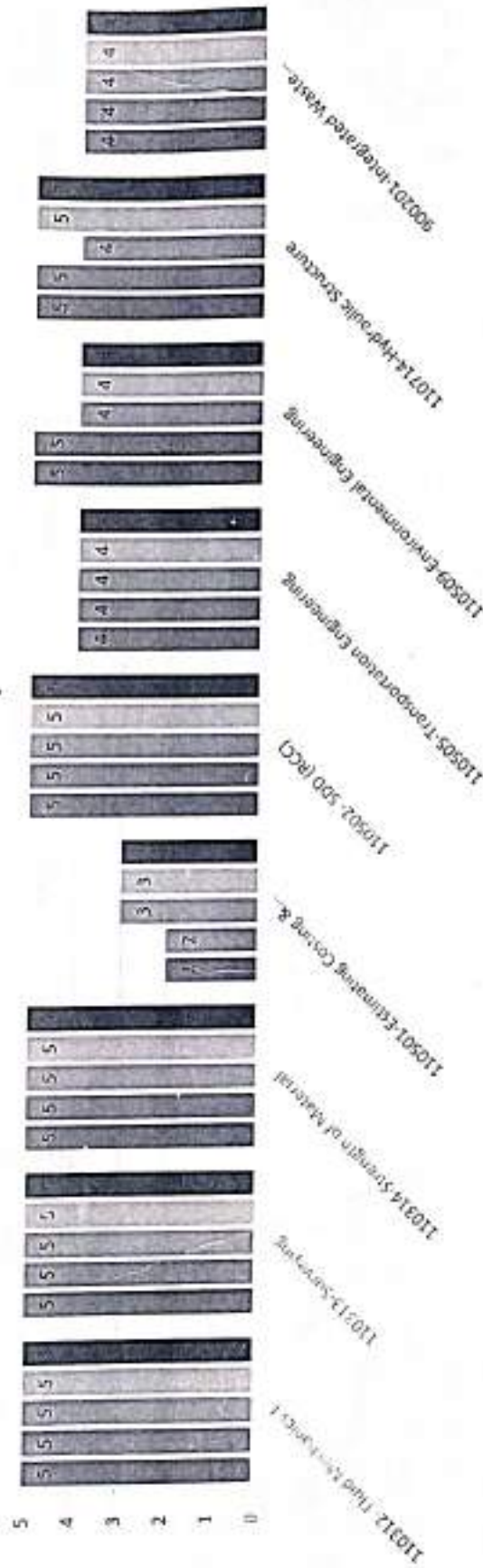




CIVIL ENGINEERING DEPARTMENT

B. FACULTY FEEDBACK ANALYSIS ON COURSE CONTENT – Dec 2021

Course Content Faculty Feedback



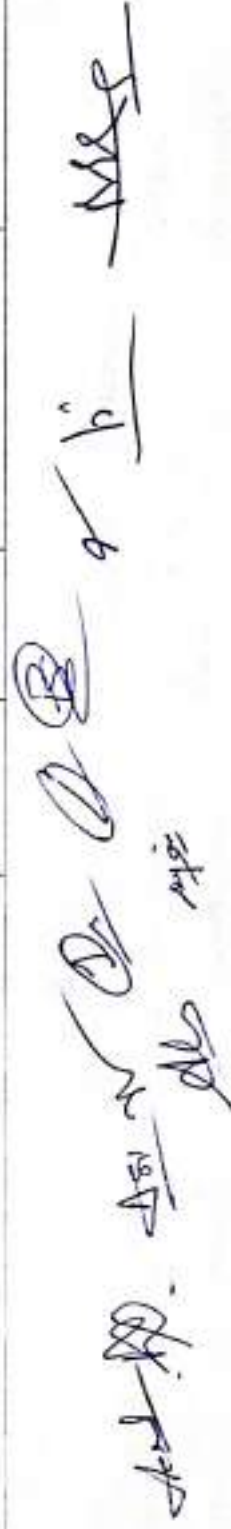
- 1. The availability of books & E-learning material in the institute is good.
- 2. The Courses and content are up to date.
- 3. The course curriculum/syllabi are helpful in meeting the higher studies/placement requirements according to present global trends.
- 4. The course / contents in your domain/area are well designed and frequently updated, hence need no changes at present.
- 5. The curriculum is capable of inculcating life-long learning abilities in students.

Prof. Arun Kumar Singh
 Dr. O. B. Singh
 Dr. P. Singh
 Dr. R. Singh
 Dr. S. Singh

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Select your course	Select your Subject	1. The availability of books & E-learning material in the institute is good.	2. The Courses and content are up to date.	3. The course curriculum/syllabi are helpful in meeting the higher studies/placement requirements according to present global trends.	4. The course / contents in your domain/area are well designed and frequently updated, hence need no changes at present.	5. The curriculum is capable of inculcating life-long learning abilities in students.
B. Tech	110311- Building Material & Construction	5	5	4	5	5
B. Tech	110312- Fluid Mechanics-I	5	5	5	5	5
B. Tech	110313- Surveying	5	5	5	5	5
B. Tech	110314- Strength of Material	5	5	5	5	5
B. Tech	110501- Estimating, Costing & Contracting	2	2	3	3	3
B. Tech	110502- Structural Design & Drawing (R.C.C.)	5	5	5	5	5
B. Tech	110505- Transportation Engineering	4	4	4	4	4
B. Tech	110509- Environmental Engineering	5	5	4	4	4
B. Tech	110714-Hydraulic Structure	5	5	4	5	5
B. Tech	900201- Integrated Waste Management for Smart City	4	4	4	4	4



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CIVIL ENGINEERING DEPARTMENT

Inputs received from Faculty:

Course level	Course	1. The availability of books & E-learning material in the institute is good. (Please give your opinion)	2. The Courses and content are up to date. Please suggest if you feel any new course(s) need to be introduced to meet current needs & technological changes?	3. The course curriculum/syllabi are helpful in meeting the higher studies/placement requirements according to present global trends.	4. The course / contents in your domain/area are well designed and frequently updated, hence need no changes at present. If you feel some changes (new content to be added or outdated content to be removed) are needed]	5. The curriculum is capable of inculcating life-long learning abilities in students.	6. The environment of department/institute is conducive for innovative teaching and research.	7. The institute supports you in your initiatives for updating your knowledge/skills and in achieving career growth.
B. Tech	110311 Building Material & Construction						Yes	Yes
B. Tech	110312 Fluid Mechanics-I						Very good	Yes
B. Tech	110313 Surveying						Very conducive	Yes
B. Tech	110314 Strength of Material							
B. Tech	110502 Structural Design & Drawing (RCC)						Yes	
B. Tech	110509 Environmental Engineering			More practical and field exposure is require in civil engineering field	Basic course on Engineering Geology must be included at 2nd year level		Facilities are available but supporting staff (lab assistant) are not up to date	Institute support is apprecable in updating our knowledge and skills



CIVIL ENGINEERING DEPARTMENT

B. Tech	110505 Transportation Engg.							
B. Tech	110501 Estimating Costing & Contracting	Engineering Geology Course and its lab is absent in the course content						
B. Tech	110714- Hydraulic Structure	CO needs to be reframed.				For development of life-long learning abilities, students are required to do practice on analysis and design aspects of hydraulic structures	Yes	Yes
B. Tech	900201- Integrated Waste Management for Smart City this.	More books & e books are required for					Yes	Yes

(i) Honours:	(ii) Minor specialization:	(iii) Departmental electives:	(iv) Open electives:
-	Air Pollution & Control	Solid Waste Management, Traffic Engineering, Concrete Technology, Foundation Engineering	-
Traffic engineering, Structural	Scientific Computing using MATLAB	MCDDM Techniques Using R	-



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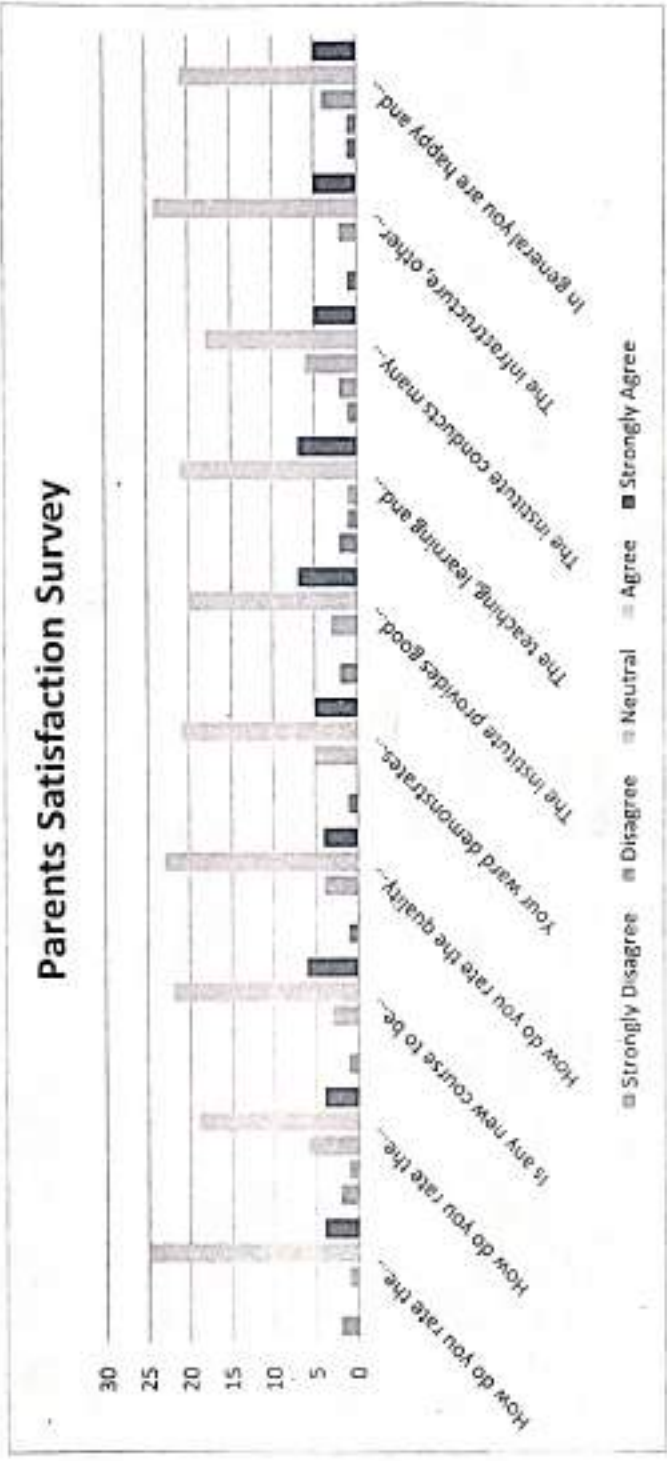
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dynamics, Geology & Soil Mechanics Optimization in Civil Engineering	Geographical Information System	Natural Hazards, Air Pollution & Control, Rural Water Resources Management, Sustainable Materials & Green buildings
Probability Methods in Civil Engg.	Underground Technology, Design of Bunkers and Silos, Advanced Concrete Technology, Design of Impact Resistant Structures	Network Analysis for Mines and Mineral Engineering
Reinforces Concrete Bridges		Sustainable Materials and Green Buildings

~~Dr. V. K. Singh~~     

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C. PARENT'S FEEDBACK ANALYSIS – Dec 2021



Prof. Dr. N. D. B. & Li
 Head of the Dept.
 Civil Engineering Department, MITS Gwalior

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PARENTS SATISFACTION SURVEY							
Sample Size : 32							
S. No.	Parameter	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Parent Satisfaction Index
1	How do you rate the programme in terms of the load of the courses in different semesters? / आप अलग-अलग सेमेस्टर में पाठ्यक्रमों के भार के संदर्भ में कार्यक्रम को कैसे रेट करते हैं?	2	0	1	25	4	3.90625
2	How do you rate the availability of books & E-learning material in the institute library / website? / आप संस्थान के पुस्तकालय / वेबसाइट में पुस्तकों और ई-शिक्षण सामग्री की उपलब्धता को कैसे रेट करते हैं?	2	1	6	19	4	3.6875
3	Is any new course to be introduced- to meet current needs & technological changes? / वर्तमान जरूरतों और तकनीकी परिवर्तनों को पूरा करने के लिए क्या कोई नया पाठ्यक्रम शुरू किया गया है?	1	0	3	22	6	4
4	How do you rate the quality and relevance of the courses included in the programme of study / आप अध्ययन के कार्यक्रम में शामिल पाठ्यक्रमों की गुणवत्ता और प्रासंगिकता को कैसे रेट करते हैं?	1	0	4	23	4	3.90625
5	Your ward demonstrates knowledge of the recent trends and developments in the field. / आपका छात्र क्षेत्र में हाल के रुझानों और विकास के ज्ञान को प्रदर्शित करता है।	1	0	5	21	5	3.90625
6	The institute provides good support for improving overall personality of your ward. / संस्थान आपके छात्र के समग्र व्यक्तित्व में सुधार के लिए अच्छा समर्थन प्रदान करता है।	2	0	3	20	7	3.9375







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		2	1	1	1	21	7	3.9375
7	The teaching, learning and evaluation system in the institute is good. / संस्थान में शिक्षण, शिक्षण और मूल्यांकन प्रणाली अच्छी है।							
8	The institute conducts many activities that help your ward in getting job opportunities and campus placement. / संस्थान कई गतिविधियों का संचालन करता है जो आपके वार्ड को नौकरी के अवसर और कैम्पस ज्यूसमेंट दिलाने में मदद करते हैं।	1	2	6	18	5	3.75	
9	The infrastructure, other facilities and ambience of the institute is good. / संस्थान की आधारभूत संरचना, अन्य सुविधाएं और माहौल अच्छा है।	1	0	2	24	5	4	
10	In general you are happy and satisfied with the institute. / सामान्य तौर पर आप संस्थान से खुश और संतुष्ट हैं।	1	1	4	21	5	3.875	

Parents Satisfaction Index PSI (on a scale 5) 5: Strongly Agree, 4: Agree, 3: Neutral, 2: Disagree, 1: Strongly Disagree

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D. ALUMNI SATISFACTION SURVEY – Dec 2021



Ans-
Disagree
Agree
Neutral
Agree
Strongly Agree

CIVIL ENGINEERING DEPARTMENT

ALUMNI SATISFACTION SURVEY

ALUMNI SATISFACTION SURVEY							
Sample Size : 7							
S. No.	Parameter	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Alumni Satisfaction Index
1	You feel proud to be known as an MITS Alumnus	0	0	0	0	7	5
2	Institute organizes various kinds of activities for the overall development of students	0	1	1	2	3	4
3	Are you willing to contribute in the development of the Institute	0	0	0	4	3	4.428571429
4	Institute handles students' grievances properly	0	1	2	2	2	3.714285714
5	Institute has adequate laboratories and equipment for practical exposure to students	0	0	1	3	3	4.285714286
6	The education imparted at MITS is useful and relevant in your career and present job	0	1	0	2	4	4.285714286
7	Have you obtained sufficient technical knowledge (both in theory and practical) at MITS	0	1	0	3	3	4.142857143
8	Do you like to join the Institute Alumni Association	0	0	0	3	4	4.571428571
9	Would you like to receive regular updates from the Institute through Mails/Calls/SMS?	0	0	0	3	4	4.571428571
10	Overall are you satisfied with the Faculty, Staff and Administration during Program	0	0	1	3	3	4.285714286
Alumni Satisfaction Index PSI (on a scale 5) 5: Strongly Agree, 4: Agree, 3: Neutral, 2: Disagree, 1: Strongly Disagree							

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CIVIL ENGINEERING DEPARTMENT

ANNEXURE – XII (b)

**Action Taken Report based on Curriculum Feedback Received
from Stakeholders**

A. Action taken based on Curriculum Feedback received from Students

1. The course content in course Building Materials & Construction will be updated for the upcoming batches based upon the response received from students.
2. As per students demand, a course on Concrete Technology is already passed in this Board of Studies meeting as DE course in 6th Semester (under MOOC courses).
3. A course on Software applications for solving civil engineering problems is already running in 7th Sem, it will be updated, and modalities will be worked out to bring that course in earlier semesters if possible for 2020 admitted batches onwards.
4. Course contents of Fluid Mechanics – II will be taken for review in upcoming Board of Studies meeting as per student's feedback.
5. Students views have been incorporated while finalizing the list of MOOC courses for DE & honours.

B. Action taken based on Curriculum Feedback received from Faculty

1. The content of Engineering Geology has been added in the Geotechnical Engineering – I syllabus for 2020 admitted batch in 4th semester as this course was missing, also an Honour Course is being offered in 6th sem under the name of Engineering Geology.
2. While finalizing the list of courses for DE, Honour, Minor & OC through MOOC, the suggestions given by faculty members were reviewed and wherever possible were incorporated.

C. Action taken based on Feedback received from Parents

1. For some of the courses, the no. of quality books needs to be increased, hence for this recommendations will be sent in future to library incharge whenever request is generated from central library.
2. For up gradation of knowledge of students in various software's of civil engineering, some value added courses as well as internship modules will be planned.



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D. Action taken based on Feedback received from Alumni

1. As per suggestion given by alumni, a course on composite materials will be formulated and modalities will be worked out to include it in the scheme.
2. Students knowledge regarding practical/field aspects of pile foundation will be upgraded for this modalities will be worked out.
2. Improvement in alumni connect of the department needs to be done.

A series of handwritten signatures and initials in black ink. From left to right: a signature that appears to be 'Aad PP', the initials 'ASR' above 'ds', a signature 'N' above 'rajni', a large signature 'V B A', and a signature 'F' above 'AKP'.

ANNEXURE – XIII

(CO Feedback Analysis)

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Civil Engineering Department, MITS Gwalior
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ANNEXURE – XIII

Course Outcome Feedback Analysis (July - December 2021)

1. CO Feedback has been conducted for every course after the completion of teaching for the respective semester and its analysis has been carried out by calculating indirect CO attainment
2. For calculating indirect CO attainment a target of 65% has been kept.
3. The indirect CO attainment values for all courses are in the table below:
4. In most of the courses indirect CO attainment was attained except few COs.

S. No	Course Code & Name	Indirect CO Attainment %					
		CO 1	CO 2	CO 3	CO 4	CO 5	CO 6
1	110311: Building Material & Construction	75.77	73.21	75.06	75.96	75.58	-
2	110311: Building Material & Construction (Practical)	88.24	86.27	88.24	88.24	88.24	-
3	110312: Fluid Mechanics – I	71.85	72.97	70.74	77.41	75.56	77.41
4	110312: Fluid Mechanics – I (Practical)	68.34	69.85	70.31	77.88	-	-
5	110313: Surveying	77.78	75.93	74.07	74.07	70.37	-
6	110315: Survey Practice Lab	83.48	84.85	85.76	85.15	88.48	-
7	110314: Strength of Materials	74.60	70.63	70.63	69.84	73.81	-
8	110314: Strength of Materials (Practical)	77.24	72.59	71.31	73.88	-	-
9	110316: Self Learning Presentation	87.18	76.92	87.18	76.92	82.05	-
10	110501: Estimating, Costing & Contracting	80.09	78.81	79.22	77.06	76.65	-
11	110502: Structural Design & Drawing (R.C.C.)	73.40	74.92	73.99	71.89	74.33	-
12	110503: Fluid Mechanics-II	77.27	74.24	77.27	74.24	77.27	-
13	110503: Fluid Mechanics-II (Practical)	72.30	71.19	73.49	-	-	-
14	110505: Transportation Engineering	80.00	80.74	79.26	76.30	77.78	-
15	110505: Transportation Engineering (Practical)	80.95	80.95	76.19	80.16	-	-
16	110509: Environmental Engineering	81.82	81.82	84.85	81.82	84.85	-
17	110509: Environmental Engineering (Practical)	78.79	81.82	72.73	75.76	-	-
18	110711: Irrigation Engineering (DE-3)	83.33	83.33	66.67	75.00	66.67	-
19	110713: Advanced Structural Design (RCC) (DE-3)	79.63	81.48	77.78	77.78	-	-
20	110715: Advanced Structural Analysis (DE-3)	77.78	77.78	77.78	77.78	77.78	-
21	110701: Software Application for Solving Civil Engineering Problems	71.79	64.10	71.79	66.67	69.23	-
22	110703: Creative Problem Solving	94.44	91.67	94.44	94.44	-	-

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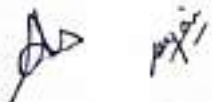
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23	900201: Integrated Waste Management for Smart City (OC - 2)	73.33	73.33	73.33	76.00	-	-
24	900213: Urban Planning & Transportation Systems (OC - 3)	79.17	76.39	76.39	79.17	75.00	-

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ANNEXURE – XIV

(Modified Scheme PG Programme 2nd Semester)



For batch admitted in 2021-2022**Master of Engineering in Construction Technology & Management (Semester – II)****Scheme of Examination**

S. No.	Subject Code	Subject Name	Maximum Marks Allotted						Total Marks	Contact Periods per week			Total Credits	
			Theory Slot			Practical Slot				MOOCs				
			End Sem	Mid Sem	Quiz/Assignment	End Sem	Lab Work / Sessional	Assignment		Exam	L	T		P
1.	510211	Project Economics & Financing	70	20	10	-	-	-	-	100	3	-	-	3
2.	510212	Construction Cost Management	70	20	10	-	-	-	-	100	3	-	-	3
3.	510213	Construction Project Management	70	20	10	-	-	-	-	100	3	-	-	3
4.		##Elective - II	70	20	10	-	-	-	-	100	3	-	-	3
5.		**Open Category Course (OC-2)	70	20	10	-	-	-	-	100	3	-	-	3
6.	510219	Computational Laboratory for Construction Management	-	-	-	90	60	-	-	150	-	-	4	4
7.	510220	S Self Learning / Presentation	-	-	-	-	100	-	-	100	-	-	2	2
		Total	350	100	50	90	160	-	-	750	15	-	6	21

##Elective-II Through SWAYAM / NPTEL / MOOC based learning platform (with credit transfer facility)


510217. Safety in Construction

510218. Strategies for Sustainable Design

*Open Category Course (OC-2) will have to be opted from the pool of open courses (Student can opt from parent department and other department) and based on interdisciplinary aspects. This course may run through SWAYAM/NPTEL based platform (with credit transfer facility).

800208. Sustainable Materials and Green Buildings*During labs, students have to perform practical assignments/ minor projects related to theory subjects/theoretical concepts of respective semester using recent technologies / languages / tools etc.*

*Self learning / presentation through SWAYAM / NPTEL (Registration in a course will be compulsory for students but assessment will be based on internal seminar presentation)



Civil Engineering Department, MITS Gwalior

Master of Technology in Environmental Engineering (Semester – II)**Scheme of Examination**

S. No.	Subject Code	Subject Name	Maximum Marks Allotted						Total Marks	Contact Periods per week			Total Credits	
			Theory Slot			Practical Slot				MOOCs	L	T		P
			End Sem	Mid Sem	Quiz/ Assignment	End Sem	Lab Work / Sessional	Assignment						
1.	530211	Air Pollution & Noise Pollution	70	20	10	-	-	-	100	3	-	-	3	
2.	530212	Advanced Treatment Process – II (Water Supply Engineering)	70	20	10	-	-	-	100	3	-	-	3	
3.	530213	Environmental Impact Assessment & Ethics	70	20	10	-	-	-	100	3	-	-	3	
4.		##Elective - II	-	-	-	-	-	-	-	-	-	-	-	
5.		**Open Category Course (OC-2)	70	20	10	-	-	25	100	3	-	-	3	
6.	530217	Advanced Environmental Engineering Lab	-	-	-	90	60	-	150	-	-	4	4	
7.	530218	S Self Learning / Presentation	-	-	-	-	100	-	100	-	-	2	2	
		Total	280	80	40	90	160	25	750	15	-	6	21	

##Elective-II Through SWAYAM/NPTEL/MOOC based learning platform (with credit transfer facility)

530216. Strategies for Sustainable Design

**Open Category Course (OC-2) will have to be opted from the pool of open courses (Student can opt from parent department and other department) and based on interdisciplinary aspects. This course may run through SWAYAM/NPTEL based platform (with credit transfer facility).

800209. Global Climatic Changes & Disaster Management

During labs, students have to perform practical/assignments/ minor projects related to theory subjects/theoretical concepts of respective semester using recent technologies / languages / tools etc.

*Self learning / presentation through SWAYAM NPTEL (Registration in a course will be compulsory for students but assessment will be based on internal seminar presentation)

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