

**Minutes of the 7th Board of Studies Meeting of the Civil Engineering held at
12.00 noon onwards on July 7th 2023 in the Committee room of the
Department**

The 7th meeting of the Board of Studies Meeting of Civil Engineering was held at 12.00 noon onwards on July 7th 2023 in the committee room of the Civil Engineering Department. The following attended the meeting:

1. Prof. Sudip Kumar Misra, IIT Kanpur, Member
2. Prof. Raj Mohan Singh, MNNIT Allahabad, Member
3. Prof. A.K. Srivastav, BIET Jhansi, Member
4. Mr. Arvind Garg, Technpro Engineers Private Limited, Kanpur, Member
5. Prof. Sunil Kumar, Member
6. Pradeep Kumar, Member
7. Dr. Deepesh Singh, Member
8. Dr. Rajiv Ganguly, Member
9. Dr. Kavita Tandon, Member
10. Mr. Manish Kumar, Member
11. Mr. Shivani Koshtha, Member
12. Mr. Jay Prakash, Member
13. Prof. Dipteek Parmar, Head, Civil Engineering, Chairman, BoS

The following could not attend the meeting:

1. Prof. Animesh Das, IIT Kanpur
2. Prof. Mukesh Sharma, IIT Kanpur
3. Mr. Arvind Kumar Singh, Kanpur Metro
4. Mr. Prithvipati, Civil Engineering, HBTU Kanpur
5. Ms. Kajol Priya, Civil Engineering, HBTU Kanpur

At the outset, the Head, of Civil Engineering and Chairman, BoS of Civil Engineering, HBTU Kanpur welcomed all member of the BoS. Later, the following Agenda items were considered and deliberated upon extensively by the BoS. The BoS finally resolved the following unanimously:

**Agenda 7.1: Modification/Amendment in already approved course structure of B.Tech
(Civil Engineering) programme (from B.Tech 2nd year onwards) as
applicable from 2022-23 onwards**

Decision

The Head, Civil Engineering informed the members that because of few typographical errors, there were few mistakes in the B.Tech course structure approved in the 6th BoS meeting of the Civil Engineering held on October 22nd 2022. The typographical mistakes were apprised to the members. The new external members were also apprised that the university has implemented the NEP 2020 to the extent that it will award a certificate course after B.Tech first year and Diploma in Civil Engineering after B.Tech 2nd year.

Taking note of this, the external experts perused the course-structure thoroughly and suggested a few changes esp. related to shifting of few courses from third year to 2nd year so that a Diploma holder can get a the basic exposure of all courses of Civil

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Engineering in the best possible manner within the constraints of credit limits. These changes are as follows:

- a) Shifting of Geotech Engineering-I from 5th semester to 3rd semester (with L-T-P-C = 2-1-2-4) and consequently shifting Engineering Hydrology from 3rd semester to 6th semester (with L-T-P-C = 3-0-0-3).
- b) Shifting of Transportation Engineering-I from 5th semester to 4th semester (with L-T-P-C = 3-0-2-4) and consequently shifting "Estimation and Construction Management" from 4th semester to 6th semester (with L-T-P-C = 3-0-0-3).
- c) Consequent upon a) and b) above, the necessary changes in credits be made/accommodated as per the stipulated limits 22/24 credits, as the case may be.
- d) The nomenclature of "Earthquake Resistant Structures" in 6th semester be partially modified to "Earthquake Resistant Design"
- e) The program elective course (PEC-I) titled "Design of Tanks and Reservoirs" be shifted from 6th semester to 7th semester (as PEC III). In turn, the programme elective course (PEC III) titled "Remote Sensing and GIS" be shifted from 7th semester to 6th semester (as PEC-I).
- f) One more open elective titled "Introduction to Infrastructure Engineering" be added to the list of Open elective III (OEC-III) offered by the Civil Engineering Department.

The BoS deliberated upon the suggested changes and unanimously decided to make the changes as suggested at a) to f) above.

The revised course structure of B.Tech (Civil Engineering) from 2nd year onwards along with the list of open elective courses (Annexure I) and list of programme elective courses (Annexure II) is enclosed.

Agenda 7.3: Framing of the syllabus of B.Tech (Civil Engineering) programme (B.Tech 2nd year onwards) as applicable from 2023-24 onwards

Decision: The BoS members perused the syllabus of all courses of the B.Tech programme (along with the Course objective, Course outcomes and CO-PO mapping) and approved the same.

Agenda 7.3: Framing of the course structure and syllabus of M.Tech (Environmental Science & Engineering) programme as applicable from 2023-24 onwards

Decision: The BoS members perused the course structure of M.Tech (Environmental Science and Engineering) and the syllabus of all the courses and approved the same.

Agenda 7.4 Approval of various courses for "Minor Degree" in (a) Civil Engineering (b) Environmental Engineering (for students with Major in other branches of Engineering/Technology).

Decision: The committee unanimously approved the courses as proposed for the "Minor Degree" in a) "Civil Engineering" and b) Environmental Engineering

Any other items

While discussing the course structure and syllabus of the M.Tech (Environmental Science and Engineering) programme, the external members observed that many courses of the programme are interdisciplinary/multi-disciplinary in nature. Arising out of this, the members opined that the eligibility for admission to this M.Tech programme be broadened in line with that of IIT Kanpur / IIT Mumbai etc so candidates from basic sciences and B.Tech from other branches could also be considered for admission to this programme. This in turn will improve the research output of the department. In response, the members were informed that prior to 2016 (when the HBTI Kanpur was affiliated to Dr. AKTU Lucknow), candidates from other branches were also eligible and many of them performed very well in their studies and dissertation.

This issue was deliberated at length and the BoS unanimously resolved that the candidates with the following disciplines/branches be considered for admission to M.Tech (Environmental Science and Engineering) programme:

- B.Tech in any branch of engineering/technology, provided they have studied Mathematics up to their 12th standard (intermediate level). (Though preference be given to candidates from Civil Engineering/Environmental Engineering/ Chemical Engineering). In case, the candidates have not studied mathematics up to their 12th standard, they shall have to complete a bridge course in Mathematics (Mathematics-I).
- M.Sc (Chemical Sciences)/ Chemistry/Environmental Sciences/Life Sciences. However, all such candidates should have studied Mathematics up to their 12th standard (intermediate level). In case, the candidates have not studied mathematics up to their 12th standard, they shall have to complete a bridge course in Mathematics (Mathematics-I).

The BoS also opined that, if possible, the admissions be made with this revised eligibility at the earliest.

The meeting ended with thanks to the chair.

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Chairman
BoS

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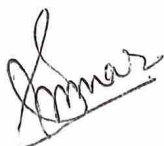
DEPARTMENT OF CIVIL ENGINEERING
HBTU, Kanpur

Course Structure and Evaluation Scheme

B.Tech. Civil Engineering
(2nd year onwards)

(Effective from Session 2023-24)

HARCOURT BULTER TECHNICAL UNIVERSITY
KANPUR



HARCOURT BUTLER TECHNICAL UNIVERSITY KANPUR
SCHOOL OF ENGINEERING
B. Tech. (Civil Engineering)
Year II, Semester- III

S. No.	Course Type	Course Title	Subject Code*	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MS E	T A	La b	Total		
1	BSC	Engg. Math-II		4	3	1	0	30	20	-	50	50	100
2	ESC	Strength of Material		4	3	1	0	30	20	-	50	50	100
3	PCC	Fluid Mechanics		4	3	1	0	30	20	-	50	50	100
4	PCC	Surveying		4	2	1	2	15	20	15	50	50	100
5	PCC	Building Material and Construction		4	3	0	2	15	20	15	50	50	100
6	PCC	Geotech. Engg. I		4	2	1	2	15	20	15	50	50	100
Total Credits: 24													700

Year II, Semester- IV

S. No.	Course Type	Course Title	Subject Code*	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MS E	T A	La b	Total		
1	BSC	Engg. Math III		4	3	1	0	30	20	-	50	50	100
2	ESC	HHM/C		4	2	1	2	15	20	15	50	50	100
3	PCC	SA-I		3	2	1	0	30	20	-	50	50	100
4	PCC	DCS-I		4	2	1	2	15	20	15	50	50	100
5	PCC	Environmental Engg - I		3	2	1	0	30	20	-	50	50	100
6	HSMC	Engg. Economics & Management		3	3	0	0	30	20	-	50	50	100
7	PCC	Transportation Engineering-I		3	2	1	0	30	20	-	50	50	100
Total Credits: 24													700

**To be allotted by Academic Section*

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HARCOURT BULTER TECHNICAL UNIVERSITY KANPUR

B. Tech. (Civil Engineering)

Year III, Semester- V

S. No.	Course Type	Course Title	Subject Code*	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MS E	TA	Lab	Total		
1	PCC	Structural Analysis II		3	2	1	0	30	20	-	50	50	100
2	PCC	Design of Concrete Engineering-II		3	2	1	0	30	20	-	50	50	100
3	PCC	Geotechnical Engineering, II		4	3	1	0	30	20	-	50	50	100
4	PCC	Transportation Engineering-II		4	3	0	2	15	20	15	50	50	100
5	PCC	Environmental Engineering II		4	3	0	2	15	20	15	50	50	100
6	PCC	Computer Applications in Civil Engineering		2	1	0	2	15	20	15	50	50	100
7	OEC-I	As per Annexure-I.		2	2	0	0	30	20	-	50	50	100
Total Credits: 22													700

Year III, Semester- VI

S. No.	Course Type	Course Title	Subject Code*	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MS E	TA	Lab	Total		
1	PCC	Design of steel structure		3	2	1	0	30	20	-	50	50	100
2	PCC	Engg Hydrology		3	3	0	0	30	20	-	50	50	100
3	PCC	Estimation & Construction Management		3	3	0	0	30	20	-	50	50	100
4	PCC	Irrigation & Hydraulic Design		4	3	1	0	30	20	-	50	50	100
5	PCC	Earthquake Resistant Design		3	3	0	0	30	20	-	50	50	100
6	PEC-I	As per Annexure-II		4	3	1	0	30	20	-	50	50	100
7	HSMC	Entrepreneurship Development		2	2	0	0	30	20	-	50	50	100
Total Credits: 22													700

**To be allotted by Academic Section*

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HARCOURT BULTER TECHNICAL UNIVERSITY KANPUR

B. Tech. (Civil Engineering) Year IV, Semester- VII

S. No.	Course Type	Course Title	Subject Code*	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MS E	TA	Lab	Total		
1	PEC-II	As per Annexure -II		4	3	1	0	30	20	-	50	50	100
2	PEC-III	As per Annexure -II		3	3	0	0	30	20	-	50	50	100
3	PEC-IV	As per Annexure -II		3	3	0	0	30	20	-	50	50	100
4	Seminar	Seminar		2	0	0	4	-	-	-	50	50	100
5	Industrial Training	Industrial Training		2	0	0	4	-	-	-	50	50	100
6	Minor Project	B.Tech Minor Project		6	0	0	12	-	-	-	50	50	100
7	OEC-II	As per Annexure -I		2	2	0	0	30	20	-	50	50	100
Total Credits: 22													700

Year IV, Semester- VIII

S. No.	Course Type	Course Title	Subject Code *	Credits	Periods			Sessional Marks				ESE	Total Marks
					L	T	P	MSE	TA	Lab	Total		
1	PEC-V	As per Annexure-II		4	3	1	0	30	20	-	50	50	100
2	OEC-III	As per Annexure-I		2	2	0	0	30	20	-	50	50	100
3	Project	B.Tech Project		16	0	0	32	-	-	-	100	100	200
Total Credits: 22													400

*To be allotted by Academic Section

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Annexure I

LIST OF OPEN ELECTIVES

LIST OF OPEN ELECTIVES	
1	OEC-I
	a. Environment & Ecology (Offered by Civil Engineering Department)
	b. Human values
	c. Cyber Security
	d. Indian knowledge Tradition
	e. One course offered by school of basic & Applied Sciences
	f. One course offered by school of Humanities & Social Sciences
2	OEC-II
	a. Environmental Pollution & Management (Offered by Civil Engineering Department)
	b. Soft Computing
	c. Artificial Intelligence
	d. 3-D Printing
	e. Logistics & Supply Chain Management
	f. One course offered by school of basic & Applied Sciences
3	OEC-III
	a. Disaster Management / Introduction to Infrastructure Engineering
	b. Robotics
	c. Data sciences
	d. Machine Learning
	e. Sustainable Development
	f. One course offered by school of basic & Applied Sciences
	g. One course offered by school of Humanities & Social Sciences

Amar

Shirani

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J-P. Nayal

Annexure II

List of Program Electives Offered by Civil Engineering Department

<p style="text-align: center;">PEC-I (6th Semester)</p> <ul style="list-style-type: none"> • Repair & Maintenance of Concrete Structure • Ground Improvement Technology • Environmental Impact Assessment • Advanced Concrete Technology • Industrial Waste Management • Traffic Engineering • Open Channel Flow • Remote Sensing and GIS 	<p style="text-align: center;">PEC-IV (7th Semester)</p> <ul style="list-style-type: none"> • Structural Fire Engineering • Earthquake Resistant Design of Foundations • Slope stability analysis and design • Water Quality Modelling • Pavement construction and maintenance • Urban Hydrology • Highway Soil Mechanics • Environmental System Analysis
<p style="text-align: center;">PEC-II (7th Semester)</p> <ul style="list-style-type: none"> • Site Investigation & Foundation Engg. • Earthquake Resistant Design of Structures • Municipal solid waste management • Transportation System & Planning • Bridge Engineering • Stochastic Hydrology • Advanced Steel Structures • Environmental risk assessment 	<p style="text-align: center;">PEC-V (8th Semester)</p> <ul style="list-style-type: none"> • Geo Environmental Engg. • Planning and management of buildings • Environmental Pollution & Control • Ground Water Flow & Pollution Modelling • Construction & Contract Management • Sustainable Transport System • Precast and Modular Construction Practices • Prestressed Concrete Design
<p style="text-align: center;">PEC-III (7th Semester)</p> <ul style="list-style-type: none"> • Structural Dynamics • Soil Dynamics • Industrial Waste Water Treatment • Advanced Hydrology • Introduction to Intelligent Transportation Systems • Solid Waste Engineering • Advanced Structural Analysis • Design of Tanks and Reservoirs 	



Course Structure and Evaluation Scheme
of
M.Tech (Environmental Science & Engineering)
(Effective from Session 2023-24)

Department of Civil Engineering

HARCOURT BULTER TECHNICAL UNIVERSITY
KANPUR

**Proposed Scheme of M.Tech (Environmental Science and Engineering) as applicable
from Academic Session 2023-24 onwards**

Course Name	Periods /Structure			Total Credits
	Lecture	Tutorial	Practical	
1st semester				
Environmental Process Chemistry and Microbiology	3	0	2	4
Environmental Quality and Pollution Management	3	1	0	4
Air Pollution and Control Engineering	3	1	0	4
Elective I	3	1	0	4
Total credits (1st semester)				16
2nd semester				
Design of Wastewater Treatment Systems	3	1	0	4
Environmental System Analysis and Applied Statistics	3	1	-	4
Solid and Hazardous Waste Management	3	1	-	4
Elective II	3	1	-	4
Total credits (2nd semester)				16
Industrial Training /Minor Project** (during summer vacation after completion of first year)				
3rd semester				
Seminar	-	-	4	2
Industrial Training/Minor Project	-	-	4	2
Dissertation -I	-	-	24	12
Total credits (3rd semester)				16
4th semester				
Dissertation II	-	-	32	16
Total credits (4th semester)				16
Total credits of the M.Tech Programme				64

**The distribution of credits may be decided by the departments*

** For courses without lab component, there will be two class tests of 15 marks each (one based on theory and the other based on the laboratory)*

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List of Elective Courses

Elective Type	Course Code	Course Name
Program Elective I	NCE	Surface Water Quality Modeling and Control
	NCE	Environmental Impact Assessment
	NCE	Remote sensing and GIS for Environmental applications
	NCE	Groundwater flow and pollution modeling
	NCE	Advanced water and wastewater treatment
Program Elective II	NCE	Industrial Wastewater Treatment
	NCE	Life Cycle Analysis and Design for Environment
	NCE	Probability and Statistics for Engineers
	NCE	Geo-environmental Engineering
	NCE	Toxicology and Environmental Risk Assessment

Chen

W. Chen

SA

Lab. Review

Shuman

J. P. Ng

Mar

J

Shuman

A) Salient Features (Pertaining to NEP)

- a) Students may register for 25% of the courses (2 numbers out of 8) in online mode.
- b) The students shall have to undergo industrial training of 4-6 weeks after the completion of 2nd semester.
- c) Provision of Multi entry and multi-exit

B) Multi-exit (grant of "PG Diploma" after completion of one year)

- a) The M.Tech Students who complete the coursework (32 credits) and a "minor project" up to 2nd semester will be eligible for the grant of a "PG Diploma".

C) Multi-entry and exit (Grant of M.Tech degree after completion of 1 year)

Mode 1 (candidates with B.Tech (H) from HBTU Kanpur)

The undergraduate students of HBTU Kanpur, with a B.Tech (Hons) (who have completed 20 additional credits in the field of M.Tech specialization offered by their department). These 20 credits are to be earned over and above the 180 credits required for the award of a B.Tech degree.

If such candidates take admission in the M.Tech programme of the same specialization, they would be given a relaxation of 20 credits in the M.Tech course work. In such case, the students will have to earn only the remaining 44 credits i.e. $64 - 20 = 44$. A possible option to earn these 44 credits could be as follows:

Dissertation: 32 credits

Seminar: 2 credits

Industrial Training: 2 credits (or 2/4 credit coursework in offline/online mode)

Courses: 8 credits (02 courses of 4 credits each) (These could be done in offline/online mode)

Candidates admitted through Mode 1, would be eligible for getting their M.Tech degree in 1 yr period. Depending upon the option of 2/4-credit coursework / 2-credit industrial training exercised by the student, he/she will be eligible for the grant of "M.Tech Degree" after 1 year or 1 yr and 6 weeks.

Mode 2 (candidates with B.Tech "Major" in one branch and a "Minor" in another from HBTU Kanpur)

- a) The undergraduate students of HBTU Kanpur, with a major in one branch and a minor in another (thereby implying that they have already earned 20 credits for getting that minor)- Such candidates, if admitted to the M.Tech programme in specialization related to the field of "minor" would be eligible for a relaxation of 20 credits in the coursework. In such case, the students will have to earn only the remaining 44 credits i.e. $64 - 20 = 44$. A possible option to earn these 44 credits could be as follows:

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Dissertation: 32 credits

Seminar: 2 credits

Industrial Training: 2 credits (or 2/4-credit coursework in offline/online mode)

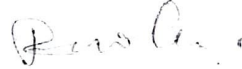
Courses: 8 credits (02 courses of 4 credits each) (These could be done in offline/online mode)

Candidates admitted through Mode 2, would be eligible for getting their M.Tech degree in 1 yr period. Depending upon the option of 2/4 credit coursework / 2-credit industrial training exercised by the student, he/she will be eligible for the grant of "M.Tech Degree" after 1 year or 1 yr and 6 weeks.

  (A.K. Srinivas)











J.P. Nagi 

