

Guru Nanak dev Engineering College, Ludhiana
(An Autonomous College under UGC Act)
Civil Engineering Department

Minutes of Meeting

The 2nd meeting of Board of Studies (Civil Engineering) was held on 6th September, 2014 in the office of Head of Department, Civil department and chaired by Dr. J N Jha (Professor & Head).

Following members were present in the meeting:

Dr. J N Jha – Chairman - Guru Nanak Dev Engineering College, Ludhiana

Dr. Harpal Singh – Member - Guru Nanak Dev Engineering College, Ludhiana,

Dr. H S Rai –Member- Guru Nanak Dev Engineering College, Ludhiana

Dr. B S Walia –Member- Guru Nanak Dev Engineering College, Ludhiana

Dr. K S Gill – Member- Guru Nanak Dev Engineering College, Ludhiana

Dr. Harvinder Singh – Member - Guru Nanak Dev Engineering College, Ludhiana

Er. Inderpreet Kaur – Member- Guru Nanak Dev Engineering College, Ludhiana

Dr. Sanjeev Aggarwal – Member- GZSPTU Campus, Bathinda- Subject Expert- VC Nominee

Dr. S P Singh – Member- NIT Jalandhar- Subject Expert

Dr. Siby John – Member- PEC University of Technology, Chandigarh-Subject Expert- Director's Nominee

Er. Satish Kumar Tanwar –Member- Ultratech- Industry Representative,

Er. T S Chahal –Member- Supt. Engg.-PWD, B&R, Govt. of Punjab – alumina

Er. Gurdeepak Singh - Special Invitee- Guru Nanak Dev Engineering College, Ludhiana

Er. Harjinder Singh - Special Invitee- Guru Nanak Dev Engineering College, Ludhiana

The Following decisions were taken:

1. The proposed credit system for B.Tech (Civil Engg.) -UG course (2014 admission batch onwards and to be implemented from 3rd semester i.e. Aug.2015 session) were discussed and are accepted with minor changes. The credits of two subjects (BTCE-501, BTCE502) of 5th semester were reduced from 5 to 4 and are added to subject 'Survey Camp Training' credits of same semester.
2. It was also suggested that concept of open elective should be started at UG level. This suggestion will be forwarded to Academic Council for further discussion.
3. In light of UGC recommendations the subject 'Research methodology' was made core subject in all PG courses offered in Civil Engineering Department.
4. Subject 'Air Pollution & Control' was included in the list of core subjects for the scheme of M.Tech Environmental Science & Engineering.

5. The subjects 'Water & Waste Water Treatment Technologies-I' and 'Water & Waste Water Treatment Technologies-II' has been renamed as 'Physico-Chemical Treatment Methods' and 'Biological Treatment Methods' respectively in the scheme of M.Tech Environmental Science & Engineering.
6. The subject 'Advanced Solid Mechanics' has been included as a core subject for the scheme of M.Tech. Structural Engineering Scheme. 'Advanced Structural Analysis' and 'Advanced Solid mechanics' subjects were merged together to accommodate 'Research methodology' as a core subject for the scheme of M.Tech. Structural Engineering Scheme.
7. BOS was of unanimous view that the list of 'Program Electives' and 'Open Electives' should be separate and accordingly the list of 'Program Electives' and 'Open Electives' were prepared separately for all PG courses currently running in the Civil Engineering Department.
8. The proposed syllabus of 1st semester for all PG courses was approved.

The meeting ended with vote of thanks.

Dr. J N Jha
(Chairman)

New Credit System Of UG For Batch 2014 & Onwards

Year	Credit
1 st Year	50
2 nd Year	55
3 rd Year	55
4 th Year	45
Total Credit	205

Third Semester					Contact Hours: 31 Hrs			
Course Code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credits
		L	T	P	Internal Marks	External Marks		
BTAM-301	Engineering Mathematics-III*	3	1	-	40	60	100	4
BTCE-301	Fluid Mechanics-I	3	1	-	40	60	100	4
BTCE-302	Rock Mechanics & Engg. Geology	3	1	-	40	60	100	4
BTCE-303	Strength of Materials	3	1	-	40	60	100	4
BTCE-304	Surveying	3	1	-	40	60	100	4
BTCE-305	Building Materials & Construction	4	0	-	40	60	100	4
BTCE-306	Fluid Mechanics-I Lab	-	-	2	30	20	50	1
BTCE-307	Strength of Materials Lab	-	-	2	30	20	50	1
BTCE-308	Surveying Lab	-	-	3	30	20	50	2
BTCE-309	Workshop Training of 4 weeks duration after 2 nd semester Carpentry, Electrical, Plumbing, Masonry, CAD				30	20	50	1
Total		19	05	07	360	440	800	29

* This subject shall be taught by the faculty of Applied Science Department

Fourth Semester					Contact Hours: 28 Hrs			
Course Code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credits
		L	T	P	Internal Marks	External Marks		
BTCE-401	Geomatics Engineering	3	1	-	40	60	100	4
BTCE-402	Construction Machinery & Works Management	3	1	-	40	60	100	4
BTCE-403	Design of Concrete Structures-I	3	1	-	40	60	100	4
BTCE-404	Fluid Mechanics-II	3	1	-	40	60	100	4
BTCE-405	Irrigation Engineering-I	3	1	-	40	60	100	4
BTCE-406	Structural Analysis-I	3	1	-	40	60	100	4
BTCE-407	Concrete Technology Lab	-	-	2	30	20	50	1
BTCE-408	Structural Analysis Lab	-	-	2	30	20	50	1
BTCE-409	General Fitness				100	-	100	
Total		18	06	04	400	400	800	26

Fifth Semester					Contact Hours: 28 Hrs			
Course Code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credits
		L	T	P	Internal Marks	External Marks		
BTCE-501	Design of Steel Structures-I	3	1	-	40	60	100	4
BTCE-502	Geotechnical Engineering	3	1	-	40	60	100	4
BTCE-503	Structural Analysis-II	3	1	-	40	60	100	4
BTCE-504	Transportation Engineering-I	3	1	-	40	60	100	4
BTCE-505	Environmental Engineering-I	3	1	-	40	60	100	4
BTCE-506	Transportation Engineering Lab	-	-	2	30	20	50	1
BTCE-507	Geotechnical Engineering Lab	-	-	2	30	20	50	1
BTCE-508	Computer Aided Structural Drawing-I	-	-	2	30	20	50	1
BTCE-509	Survey Camp of 04 weeks duration after 4 th Semester				100	50	150	4
Total		17	05	06	390	410	800	27

Sixth Semester					Contact Hours: 30 Hrs			
Course Code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credits
		L	T	P	Internal Marks	External Marks		
BTCE-601	Design of Concrete Structures-II	3	1	-	40	60	100	4
BTCE-602	Elements of Earthquake Engineering	3	1	-	40	60	100	4
BTCE-603	Foundation Engineering	4	1	-	40	60	100	5
BTCE-604	Numerical Methods in Civil Engineering	4	1	-	40	60	100	5
BTCE-605	Professional Practice	3	1	-	40	60	100	4
BTCE-606	Environmental Engineering-II	3	1	-	40	60	100	4
BTCE-607	Environmental Engineering Lab	-	-	2	30	20	50	1
BTCE-608	Computer Aided Structural Drawing-II	-	-	2	30	20	50	1
BTCE-609	General Fitness				100	-	100	
Total		20	06	04	400	400	800	28

Seventh/Eighth Semester								
Course Code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credits
		L	T	P	Internal Marks	External Marks		
BTCE-701	(a) Software Training*	-	-	-	150	100	250	7
	(b) Industrial Training				300	200	500	13
Total					450	300	750	20

*List of Software for Training any one may be learnt during Training Period

Any software that enhances professional capability in civil engineering practice a partial indicative list is mentioned below:

- | | |
|---------------------------------|-------------------------|
| 1. GT STRUDAL | 2. PRIMA VERA |
| 3. GEOTECH | 4. ARCVIEW GIS |
| 5. GEO 5 | 6. GEO STUDIO PROF 2004 |
| 7. AUTOCAD CIVIL 3D | 8. MX ROAD |
| 9. GEOMATIC | 10. STAAD PRO |
| 11. HDM-4 | 12. PLAXIS |
| 13. Any other relevant software | |

Seventh/Eighth Semester							Contact Hours: 25 Hrs	
Course Code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credits
		L	T	P	Internal Marks	External Marks		
BTCE-801	Design of Steel Structures-II	3	1	-	40	60	100	4
BTCE-802	Disaster Management	4	0	-	40	60	100	4
BTCE-803	Irrigation Engineering-II	3	1	-	40	60	100	4
BTCE-804	Transportation Engineering-II	3	1	-	40	60	100	4
BTCE-XXX	Elective-I	3	0	-	40	60	100	3
BTCE-YYY	Elective- II	3	0	-	40	60	100	3
BTCE-805	Project	-	-	3	100	50	150	3
	General Fitness				100	-	100	
Total		19	03	03	440	410	850	25

* Elective I and Elective II should not be from the same group

List of Electives:

- **Structural Engineering**

BTCE- 806 Dynamics of Structures

BTCE- 807 Finite Element Methods

BTCE- 808 Advanced Reinforced Concrete Design

BTCE- 809 Pre-stressed Concrete

- **Geotechnical Engineering**

BTCE- 810 Ground Improvement Techniques

BTCE- 811 Soil Dynamics and Machine Foundation

BTCE- 812 Earth and earth Retaining Structures

BTCE- 813 Reinforced Earth and Geotextiles.

- **Environmental/ Irrigation Engineering**

BTCE- 814 Advanced Environmental Engineering

BTCE- 815 Environmental Impact Assessment

BTCE- 816 Flood Control and River Engineering

BTCE- 817 Hydrology and Dams

- **Infrastructure / Transportation Engineering**

BTCE- 818 Pavement Design

BTCE- 819 Traffic Engineering

BTCE- 820 Bridge Engineering

BTCE- 821 Infrastructure Developments and Management

Approved

Course Scheme: M. Tech (Environmental Science & Engineering)—Full Time

Schedule of Teaching and Study Scheme

Semester	Subjects	Credits	Contact Hours/week			No. of subjects	Distribution of marks		Total Credits
			L	T	P		Ext	Int	
1	Core subjects	4	4	-	-	3	100	50	20
	Program elective	3	3	-	-	1	100	50	
	Open elective	3	3	-	-	1	100	50	
	Laboratory-1	2	--	-	4	1	50	50	
2	Core subjects	4	4	-	-	3	100	50	20
	Program elective	3	3	-	-	1	100	50	
	Open elective	3	3	-	-	1	100	50	
	Laboratory -2	2	--	-	4	1	50	50	
3	Program elective	3	3	-	-	1	100	50	14
	Program elective	3	3	-	-	1	100	50	
	Pre-thesis seminar	4	-	-	4	1	50	50	
	Pre-thesis project	4	-	-	4	1	50	50	
4	Thesis/Dissertation	14	14	-	-	--	100	200	14
Total Marks and credits							1500	1000	68

List of Core Subjects

S. No.	Subject	Subject Code
1	Physico-Chemical Treatment Methods'	MTEV-501
2	Environmental Chemistry and Microbiology	MTEV-502
3	'Biological Treatment Methods'	MTEV-503
4	Research Methodology	MTEV-504
5	Solid and Hazardous Waste Management	MTEV-505
6	Air Pollution and Control	MTEV-506

List of Laboratory/Practical work

S. No.	Subject	Subject Code
1	Lab-1	MTEV-507
2	Lab-2	MTEV-508
3	Pre-thesis seminar	MTEV-509
4	Pre-thesis project	MTEV-510
5	Thesis	MTEV-511

List of Program Electives

S. No.	Subject	Subject Code
1	Environmental Systems Engineering	MTEV-601
2	Physics of Environment	MTEV-602
3	Environmental Hydraulics and Hydrology	MTEV-603
4	Environmental Remote Sensing and GIS	MTEV-604
5	Urban Water Management	MTEV-605
6	Biodegradation and Bioremediation	MTEV-606
7	Climate Change and Sustainable Development	MTEV-607
8	Rural Water Supply and Environmental Sanitation	MTEV-608
9	Environmental Geotechnology	MTEV-609
10	Energy Technology and Alternate Energy Systems	MTEV-610
11	Strength of Materials	MTEV-611
12	Burried Structures	MTEV-612
13	Environmental Impact Assessment and Management	MTEV-613
14	Disaster Reduction and management	MTEV-614
15	Site Investigations	MTEV-615
16	Environmental Legislation and Auditing	MTEV-616
17	Air and Water Quality Modeling	MTEV-617
18	Environmental Biotechnology	MTEV-618
19	Industrial Waste Management	MTEV-619
20	Pollution Monitoring techniques	MTEV-620

List of subjects to be offered as 'Open Electives'

1	Experimental Methods in Engineering	MTEV-621
2	Numerical Methods in Engineering	MTEV-622
3	Instrumentation and model simulation	MTEV-623
4	Advanced Engineering Mathematics	MTEV-624
5	Probabilistic Methods in Engineering	MTEV-625
6	Limit Analysis	MTEV-626

Course Scheme: M. Tech (Geotechnical Engineering)—Full Time

Schedule of Teaching and study scheme

Semester	Subjects	Credits	Contact Hours/week			No. of subjects	Distribution of marks		Total Credits
			L	T	P		Ext	Int	
1	Core subjects	4	4	-	-	3	100	50	20
	Program elective	3	3	-	-	1	100	50	
	Open elective	3	3	-	-	1	100	50	
	Laboratory-1	2	--	-	4	1	50	50	
2	Core subjects	4	4	-	-	3	100	50	20
	Program elective	3	3	-	-	1	100	50	
	Open elective	3	3	-	-	1	100	50	
	Laboratory -2	2	--	-	4	1	50	50	
3	Program elective	3	3	-	-	1	100	50	14
	Program elective	3	3	-	-	1	100	50	
	Pre-thesis seminar	4	-	-	4	1	50	50	
	Pre-thesis project	4	-	-	4	1	50	50	
4	Thesis/Dissertation	14	14	-	-	--	100	200	14
Total Marks and credits							1500	1000	68

List of Core Subjects

S. No.	Subjects	Subject Code
1	Soil Dynamics	MTGT-501
2	Advanced Foundation Engineering	MTGT-502
3	Advanced Soil Mechanics	MTGT-503
4	Research Methodology	MTGT-504
5	Analysis of Settlement of Soils & Foundations	MTGT-505
6	Site Investigations	MTGT-506

List of Laboratory/Practical work

S. No.	Subject	Subject Code
1	Lab-1	MTGT-507
2	Lab-2	MTGT-508
3	Pre-thesis seminar	MTGT-509
4	Pre-thesis project	MTGT-510
5	Thesis	MTGT-511

List of Program Electives

S. No.	Subjects	Subject Code
1	Soil-Structure Interaction	MTGT-601
2	Rock Mechanics	MTGT-602
3	Geosynthetic Engineering	MTGT-603
4	Structural Design of Foundations	MTGT-604
5	Clay Mineralogy	MTGT-605
6	Retaining Structures	MTGT-606
7	Slope Stability Analysis	MTGT-607
8	Case Histories in Geotechnical Engineering	MTGT-608
9	Earth Anchors	MTGT-609
10	Design of Highway and Airport Pavements	MTGT-610
11	Strength of Materials	MTGT-611
12	Burried Structures	MTGT-612
13	Environmental Impact assessment & Management	MTGT-613
14	Soil chemistry, pollution & Control	MTGT-614
15	Disaster Reduction and management	MTGT-615
16	Environmental Geotechnology	MTGT-616
17	Ground Improvement	MTGT-617
18	Earthen Embankment	MTGT-618
19	Geomechanics	MTGT-619
20	Highway Materials & Construction	MTGT-620

List of subjects to be offered as 'Open Electives'

1	Experimental Methods in Engineering	MTGT-621
2	Numerical Methods in Engineering	MTGT-622
3	Instrumentation and model simulation	MTGT-623
4	Advanced Engineering Mathematics	MTGT-624
5	Probabilistic Methods in Engineering	MTGT-625
6	Limit Analysis	MTGT-626

Course Scheme: M. Tech (Structural Engineering)—Full Time

Schedule of Teaching and study Scheme

Semester	Subjects	Credits	Contact Hours/week			No. of subjects	Distribution of marks		Total Credits
			L	T	P		Ext	Int	
1	Core subjects	4	4	-	-	3	100	50	20
	Program elective	3	3	-	-	1	100	50	
	Open elective	3	3	-	-	1	100	50	
	Laboratory-1	2	--	-	4	1	50	50	
2	Core subjects	4	4	-	-	3	100	50	20
	Program elective	3	3	-	-	1	100	50	
	Open elective	3	3	-	-	1	100	50	
	Laboratory -2	2	--	-	4	1	50	50	
3	Program elective	3	3	-	-	1	100	50	14
	Program elective	3	3	-	-	1	100	50	
	Pre-thesis seminar	4	-	-	4	1	50	50	
	Pre-thesis project	4	-	-	4	1	50	50	
4	Thesis/Dissertation	14	14	-	-	--	100	200	14
Total Marks and credits							1500	1000	68

List of Core Subjects

S. No.	Subject	Subject Code
1	Structural Dynamics	MTST-501
2	Bridge Engineering	MTST-502
3	Theory and Design of Plates, Shells and Grids	MTST-503
4	Research Methodology	MTST-504
5	Advanced Solid Mechanics & Structural Analysis	MTST-505
6	Plastic Analysis and Design of Steel Structures	MTST-506

List of Laboratory/Practical work

S. No.	Subject	Subject Code
1	Lab-1	MTST-507
2	Lab-2	MTST-508
3	Pre-thesis seminar	MTST-509
4	Pre-thesis project	MTST-510
5	Thesis	MTST-511

List of Program Electives

S. No.	Subject	Subject Code
1	Nonlinear Analysis and computer aided methods	MTST-601
2	Finite Element Methods	MTST-602
3	Non-destructive Testing and Composite Materials	MTST-603
4	High Rise Buildings	MTST-604
5	Structural Reliability	MTST-605
6	Structural Optimisation	MTST-606
7	Pre-stressed Concrete Structures	MTST-607
8	Analysis & Design of substructures	MTST-608
9	Soil-Structure Interaction	MTST-609
10	Earthquake Resistant Design of Masonry and RC Buildings	MTST-610
11	Buried Structures	MTST-611
12	Design of Highway and Airport Pavements	MTST-612
13	Environmental Impact assessment & Management	MTST-613
14	Disaster Reduction and Management	MTST-614
15	Site Investigations	MTST-615
16	Advanced Structure Design and detailing	MTST-616
17	Industrial Structures	MTST-617
18	Theory of elasticity and plasticity	MTST-618
19	Structural Stability	MTST-619
20	Ground Improvement	MTST-620

List of subjects to be offered as 'Open Electives'

1	Experimental Methods in Engineering	MTST-621
2	Numerical Methods in Engineering	MTST-622
3	Instrumentation and model simulation	MTST-623
4	Advanced Engineering Mathematics	MTST-624
5	Probabilistic Methods in Engineering	MTST-625
6	Limit Analysis	MTST-626

Course Scheme: M. Tech (Soil Mechanics & Foundation Engineering)--Part-time

Schedule of Teaching and study scheme

Semester	Subjects	Credits	Contact Hours/week			No. of subjects	Total Credits
			L	T	P		
1	Core subjects	4	4	-	-	2	11
	Program electives	3	3	-	-	1	
2	Core subjects	4	4	-	-	1	9
	Program electives	3	3	-	-	1	
	Laboratory class	2	-	-	4	1	
3	Core subject	4	4	-	-	2	11
	Program elective	3	3	-	-	1	
4	Core subjects	4	4	-	-	1	9
	Open electives	3	3	-	-	1	
	Laboratory class	2	-	-	4	1	
5	Program electives	3	3	-	-	2	14
	Pre Thesis Seminar	4	-	-	4	1	
	Pre Thesis Project	4	-	-	4	1	
6	Thesis/Dissertation	14	14	-	-	--	14
						Total Credits	68

List of Core Subjects

S. No.	Subjects	Subject Code
1	Soil Dynamics	MTGT-501
2	Advanced Foundation Engineering	MTGT-502
3	Advanced Soil Mechanics	MTGT-503
4	Research Methodology	MTGT-504
5	Analysis of Settlement of Soils & Foundations	MTGT-505
6	Site Investigations	MTGT-506

List of Laboratory/Practical work

S. No.	Subject	Subject Code
1	Lab-1	MTGT-507
2	Lab-2	MTGT-508
3	Pre-thesis seminar	MTGT-509
4	Pre-thesis project	MTGT-510
5	Thesis	MTGT-511

List of Program Electives

S. No.	Subjects	Subject Code
1	Soil-Structure Interaction	MTGT-601
2	Rock Mechanics	MTGT-602
3	Geosynthetic Engineering	MTGT-603
4	Structural Design of Foundations	MTGT-604
5	Clay Mineralogy	MTGT-605
6	Retaining Structures	MTGT-606
7	Slope Stability Analysis	MTGT-607
8	Case Histories in Geotechnical Engineering	MTGT-608
9	Earth Anchors	MTGT-609
10	Design of Highway and Airport Pavements	MTGT-610
11	Strength of Materials	MTGT-611
12	Burried Structures	MTGT-612
13	Environmental Impact assessment & Management	MTGT-613
14	Soil chemistry, pollution & Control	MTGT-614
15	Disaster Reduction and management	MTGT-615
16	Environmental Geotechnology	MTGT-616
17	Ground Improvement	MTGT-617
18	Earthen Embankment	MTGT-618
19	Geomechanics	MTGT-619
20	Highway Materials & Construction	MTGT-620

List of subjects to be offered as 'Open Electives'

1	Experimental Methods in Engineering	MTGT-621
2	Numerical Methods in Engineering	MTGT-622
3	Instrumentation and model simulation	MTGT-623
4	Advanced Engineering Mathematics	MTGT-624
5	Probabilistic Methods in Engineering	MTGT-625
6	Limit Analysis	MTGT-626