Minutes of the **Forty First (41st)** meeting of the Senate held on 13.07.2012 (Friday) at 3.00 p.m. in the Conference Room of the Institute.

Following members of the Senate attended the meeting:

1.	Prof. P. Chakrabarti	-	Director / Chairman
2.	Prof. S. K. Agrawal	-	Member
3.	Prof. R. K. Srivastava, CED	-	Member
4.	Prof. P. R Agrawal	-	Member
5.	Prof. P.K.Mishra	-	Member
6.	Prof. Sudarshan Tiwari	-	Member
7.	Prof. Nirjhar Roy	-	Member
8.	Prof. S.K. Duggal	-	Member
9.	Prof. Dinesh Chandra	-	Member
10.	Prof. Vineeta Agarwal	-	Member
11.	Prof. Peetam Singh	-	Member
12.	Prof. Rajeev Tripathi	-	Member
13.	Prof. M.M. Gore	-	Member
14.	Prof. Rakesh Narain	-	Member
15.	Prof. N.D. Pandey	-	Member
16.	Prof. Suneeta Agrawal	-	Member
17.	Prof. Ravindra K. Singh	-	Member
18.	Prof. H.N. Kar	-	Member
19.	Prof. P.K.Dutta	-	Member
20.	Prof. A.K.Sachan	-	Member
21.	Prof. P.P.Sahay	-	Member
22.	Prof. M. D. Singh	-	Member
23.	Prof. A.K.Singh	-	Member
24.	Prof. R. D. Gupta	-	Member
25.	Prof. A.D. Bhatt	-	Member
26.	Prof. Sanjay Chaubey	-	Member
27.	Prof. Mahendra Kumar	-	Member
28.	Prof. R. C. Vaishya	-	Member
29.	Prof. R.S. Yadav	-	Member
30.	Prof. R.P. Singh	-	Member
31.	Dr. Sarvesh K. Tiwari	-	Registrar / Secretary

The Chairman, Senate extended warm welcome to the members and thanked them for taking their time out to attend the meeting.

Agenda wise proceedings are as follows:

Item No. 41.01 : **To confirm the minutes of the Fortieth [40th] meeting of the Senate held on 25.05.2012.**

Resolution : The Senate confirmed the minutes of its **Fortieth [40th] meeting** held on 25.05.2012, with following modifications:

Resolution No. 40.02: The Senate resolved that the Action Taken Report may be signed by the Dean [Academic] in place of Registrar/ Secretary, Senate.

Resolution No. 40.03: The third line of the resolution may be read as

*" committee with following members to review the U.G., **P.G.** and Ph.D. ordinances in light of"*

in place

*" committee with following members to review the U.G., **U.G.** and Ph.D. ordinances in light of"*

The Senate also confirmed the minutes of its Ninth [9th] Emergent meeting held on 22.06.2012, as circulated.

Item No. 41.02 : **To consider the action taken on the decisions taken in the 40th meeting of the Senate held on 25.05.2012.**

Resolution : The Senate noted the action taken on the resolutions passed by the Senate in its Fortieth [40th] meeting held on 25.05.2012 and the Ninth [9th] Emergent meeting held on 22.06.2012.

Item No. 41.03 : **To consider the recommendations of the Committee constituted for development of uniform course structure/frame work across all the departments of the Institute and subsequent revision of UG/PG curriculum of all courses**

Resolution : The Senate considered the uniform course structure/frame work developed for all the departments of the Institute, and subsequently revised curriculum of all U.G. courses; and to approved the same.

Course Structure/framework developed and revised curriculum of all U.G. courses as approved by the Senate are placed at **ANNEXURE –A.**

The Senate further resolved that for the revision of course structure and curriculum of P.G. programmes such as MCA, MBA, M.Sc. and M.S.W., respective departments may forward their proposal to the Senate Post Graduate Committee [SPGC] for consideration. The SPGC may submit its recommendations to the Senate/Chairman, Senate for consideration and approval.

Item No. 41.04 : **To consider the recommendations of the Committee constituted for revision of B.Tech. 1st year course Curriculum.**

Resolution : The Senate considered the recommendations of the Committee constituted for revision of

B.Tech. 1st year course Curriculum; and approved the same.

The revised B.Tech. 1st year course curriculum as approved by the Senate is placed at **ANNEXURE – B.**

Item No. 41.05 : **To consider the Academic Calendar for the session 2012-13.**

Resolution : The Senate considered the Academic Calendar for the session 2012-13; and approved the same.

The Academic Calendar for the session 2012-13 as approved by the Senate is placed at **ANNEXURE – C.**

Item No. 41.06 : **To consider the recommendations of the Committee constituted to recommend the procedure and time frame to be adopted for retention of academic records.**

Resolution : The Senate considered the recommendations of the Committee constituted to recommend the procedure and time frame to be adopted for retention of academic records; and approved the same.

As per recommendations of the Committee and the approval of the Senate the following procedure and time frame may be adopted by the Institute for retention of academic records:

(i) Following time frame may be followed for retention of academic records :

Sl. No.	Particulars	Time Period
1.	Evaluated Answer Books for particular Semester	90 days from the date of declaration of End Semester results
2.	Attendance Register	90 days from the date of declaration of End Semester results.
3.	Admission File [Application form and relevant document submitted by the admitted student at the time of admission]	Life Time
4.	Tabulation Sheet/Grade Sheet	Life Time
5.	List of admitted Students	Life Time
6.	List of Degree recipients	Life Time

(ii) The Evaluated Answer Books and Attendance Register may be retained by the Department concerned for 90 days. After 90 days, all the departments may send these records to the office of the Dean [Academic] for disposal.

(iii) All other records will be retained by the office of the Dean [Academic].

Item No. 41.07 : **To note and ratify the approval accorded by the Chairman, Senate on**

[i]. Recommendations made by the Ph.D. Oral Boards of different departments.

[ii]. Recommendations made by the SPGC in its meeting held on 28.03.2012.

[iii]. Recommendations of the Committee constituted for the recommending the

methodology to be adopted to attract good quality students to be admitted in M.Sc. and M.S.W. programmes.

Resolution : The Senate noted and ratified the approval accorded by the Chairman, Senate on the following matters:

[i]. The Senate noted and ratified the approval accorded by the Chairman, Senate on the recommendations of the Ph.D. oral Boards of following students as per details given below:

Sl. No.	Name of Student	Registration No.	Department
1.	Mr. Amit Raj Singh	2007RME01	Mechanical Engineering
2.	Mr. Shiv Dayal Pandey	2008RME09	Mechanical Engineering
3.	Ms. Shakti Mishra	2008RCS04	Computer Science & Engineering
4.	Mr. Pitam Singh	2007RMA05	Mathematics

[ii]. The Senate noted and ratified the approval accorded by the Chairman, Senate on the recommendations made by the SPGC in its meeting held on 28.03.2012.

A copy of the recommendations made by the SPGC in its meeting held on 28.03.2012 and approved by the Chairman, Senate is enclosed here as **ANNEXURE – D.**

[iii]. The Senate noted and ratified the approval accorded by the Chairman, Senate on the recommendations of the committee constituted for the recommending the methodology to be adopted to attract good quality students to be admitted in M.Sc. and M.S.W. programmes.

A copy of the recommendations of the committee constituted for the recommending the methodology to be adopted to attract good quality students to be admitted in M.Sc. and M.S.W. programmes and approved by the Chairman, Senate is enclosed here as **ANNEXURE – E.**

Item No. 41.08 : **Any other matter with the permission of the Chairman, Senate.**

Resolution : The Senate considered the following matters with the permission of the Chairman, Senate:

(i) The Senate considered the list of expert members, to act as members of Selection Committees, as nominee of the Senate as per Statute 23(5) (a) (4) of the First Statutes of all NITs, for recruitment / promotion of academic staff, for all the departments; and approved the same.

(ii) The Senate considered the request made by the following Ph. D. students along with the recommendations of their supervisors for grant of extension of one semester for thesis submission, and resoled to grant them extension of one semester for submission of thesis.

Sl. No.	Name of Students	Registration No.	Department
1.	Mr. Audesh Narayan	2005RME01	Mechanical Engineering
2.	Mrs. Richa Negi	2006REE05	Electrical Engineering
3.	Mr. Aniruddha Narain	2006REE04	Electrical Engineering
4.	Mrs. Vandana Agrawal	2006RME03	Mechanical Engineering
5.	Mr. Ravi Shankar Pandey	2005RCS03	Computer Science and Engineering

(iii) The Senate considered the mercy appeal of Mr. Manoj Kumar Pandey [Reg. No. 2008RCE03] student of Ph.D., Department of Civil Engineering for allowing him to register in Ph.D. programme; and resolved to refer the same to the SPGC for consideration and recommendations.

(iv) The Senate considered the proposal of the DPGC of the GIS Cell for modification in the eligibility criteria for admission in M.Tech. and Ph.D. programmes of the Cell; and approved the same.

The modified eligibility criteria as approved by the Senate for admission in M.Tech. and Ph.D. programme in the department is as follows:

(a) For M.Tech. programme

Bachelors degree in Civil Engg./Computer Science & Engg./Information Technology/Electronic Engg./ Architecture/Agriculture Engg./Electrical Engg./Mining Engg. or its equivalent or Master of Science in GIS and Remote Sensing/Geology/Geography or Master of Computer Applications.

(b) For Ph.D. Programme

M.Tech. or equivalent in GIS and Remote Sensing/ Civil Engg./Computer Science & Engg./ Information Technology/Agriculture Engg./ Mining Engg. or M.Sc. degree in GIS and Remote Sensing/Applied Geology/Geography or degree in Master of Computer Applications.

The M.Sc. candidates should be JRF/NET/GATE qualified with min. 75% marks at master level.

(v) The Senate considered the proposal of the DPGC of the Department of Mechanical Engineering, for inclusion of a professional elective, "Solar Energy and its Applications" for M.Tech. programmes ; and approved the same.

The syllabus of the professional elective course is enclosed as **ANNEXURE – F**.

The meeting concluded with the vote of thanks to the Chair.

Approved

10.09.2012

(P. Chakrabarti)
Director/Chairman

10/09/12

(Sarvesh K. Tiwari)
Registrar/ Secretary

Curriculum for
Bachelor of Technology in
Biotechnology

3rd Semester (Biotechnology)

Course Code	Course name	L	T	P	Credit
BT-1301	Biochemistry	3	1	-	4
BT-1302	Microbiology	3	1	-	4
BT-1303	Cell and System Biology	3	-	-	3
BT-1304	Genetics	3	1	-	4
AM-1305	Biomaterial Science and Engineering	3	1	-	4
BT-1305	Thermodynamics of Biological system	3	1	-	4
BT-1351	Microbiology (Lab)	-	-	3	2
BT-1352	Genetics (Lab)	-	-	3	2
AM-1355	Biomaterial Science and Engineering (Lab)	-	-	3	2
	Total	18	5	9	29

4th Semester (Biotechnology)

Course Code	Course name	L	T	P	Credit
BT-1401	Biophysics and Structural Biology	3	1	-	4
AM-1406	Applied Computational Methods	3	1	-	4
BT-1402	Instrumentation in Biotechnology	3	1	-	4
BT-1403	Bioprocess Engineering	3	1	-	4
BT-1404	Molecular Biology	3	-	-	3
BT-1451	Biochemistry and Molecular Structural Analysis (Lab)	-	-	3	2
AM-1453	Applied Computational Methods (Lab)	-	-	3	2
BT-1452	Techniques in Biotechnology (Lab)	-	-	3	2
BT-1453	Bioprocess Engineering (Lab)	-	-	3	2
	Total	15	4	12	27

5th Semester (Biotechnology)

Course Code	Course name	L	T	P	Credit
BT-1501	Genetic Engineering	3	1	-	4
BT-1502	Microbial Biotechnology	3	1	-	4
BT-1503	Immunology	3	-	-	3
BT-1504	Molecular and Cellular diagnostics	3	1	-	4
HS-1501	Principles of Management	3	-	-	3
MA-1501	Biostatistics	3	1	-	4
BT-1551	Genetic Engineering (Lab)	-	-	3	2
BT-1552	Microbial Biotechnology (Lab)	-	-	3	2
BT-1553	Immunology (Lab)	-	-	3	2
	Total	18	4	9	28

6th Semester (Biotechnology)

Course Code	Course name	L	T	P	Credit
BT-1601	Bioinformatics	3	1	-	4
BT-1602	Enzyme Technology and Engineering	3	1	-	4
BT-1603	Animal Biotechnology	3	-	-	3
BT-1604	Plant Biotechnology	3	1	-	4
BT-1605	IPR and Biotechnology	3	-	-	3
HS-1601	Communication Skill (Workshop)	-	2	-	0
BT-1606	Bioreactor and Plant Design	3	1	-	4
BT-1651	Bioinformatics (Lab)	-	-	3	2
BT-1652	Enzyme Technology and Engineering (Lab)	-	-	3	2
BT-1653	Animal Biotechnology (Lab)	-	-	3	2
	Total	18	6	9	28

7th Semester (Biotechnology)

Course Code	Course name	L	T	P	Credit
OE-1781	Open Elective I	3	-	-	3
BT-1731 to BT-1740	Professional Elective I	3	-	-	3
BT-1741 to BT-1750	Professional Elective II	3	-	-	3
BT-1791	Major Project (Interim Evaluation)	-	6	-	6
BT-1751	Medical Biotechnology and Diagnostic (Lab)	-	-	3	2
BT-1752	Plant Biotech (Lab)	-	-	3	2
	Total	9	6	6	19

8th Semester (Biotechnology)

Course Code	Course name	L	T	P	Credit
BT-1801	Bioprocess Control and Economics	3	1	-	4
OE-1881	Open Elective II	3	-	-	3
BT-1831 to BT-1840	Professional Elective III	3		-	3
BT-1841 to BT-1850	Professional Elective IV	3		-	3
BT-1891	Major Project (Final Evaluation)	-	6	-	6
	Total	12	7	-	19

Curriculum for
Bachelor of Technology in
Chemical Engineering

3rd Semester (Chemical Engineering)

Course Code	Course name	L	T	P	Credit
ME-1301	Engineering Thermodynamics	3	1		4
CL-1301	Fluid Particle Mechanics and Mechanical Operations	3	1		4
AM-1303	Material Science and Engineering	3			3
EE-1305	Basic Electrical and Electronics	3			3
MA-1301	Numerical Methods and Statistical Techniques	2	1		3
AM-1305	Fluid Flow Operations and Hydraulic Machine	3	1		4
ME-1351	Computational Lab			3	2
AM-1352	Material Science Lab			3	2
AM-1354	Fluid Flow Operations lab			3	2
CL-1351	Mechanical Operation Lab			3	2
	Total	17	4	12	29

4th Semester (Chemical Engineering)

Course Code	Course name	L	T	P	Credit
CH-1401	Organic and Physical Chemistry	2	1		3
CL-1401	Process Equipment Design – I	3	1		4
CL-1402	Heat Transfer Operations	3	1		4
CL-1403	Mass Transfer - I	3	1		4
CL-1404	Chemical Technology - I	3			3
CL-1405	Chemical Process Principles	3	1		4
CH-1451	Organic and Physical Chemistry Lab			3	2
CL-1451	Heat Transfer Lab			3	2
CL-1452	Mass Transfer Lab - I			3	2
	Total	16	5	9	28

5th Semester (Chemical Engineering)

Course Code	Course name	L	T	P	Credit
CL-1501	Chemical Reaction Engineering -I	3	1		4
CL-1502	Mass Transfer - II	3	1		4
CL-1503	Process Dynamics and Control	3	1		4
CL-1504	Chemical Technology - II	3			3
CL-1505	Chemical Engineering Thermodynamics	3	1		4
HS-1501	Principles of Management	3			3
CL-1551	Mass Transfer Lab - II			3	2
CL-1552	Chemical Reaction Engineering Lab – I			3	2
CL-1553	Process Dynamics and Control Lab			3	2
	Total	18	4	9	28

6th Semester (Chemical Engineering)

Course Code	Course name	L	T	P	Credit
CL-1601	Advanced Separation Processes	3	1		4
CL-1602	Transport Phenomena	3	1		4
CL-1603	Environmental Pollution, Monitoring and Control	3	1		4
CL-1604	Chemical Reaction Engineering - II	3	1		4
CL-1605	Process Equipment Design – II	3	1		4
HS-1601	Communication Skill (Workshop)			2	0
CL-1651	Environmental Monitoring Lab			3	2
CL-1 652	Chemical Reaction Engineering Lab – II			3	2
CL-1 653	Process Design and Simulation Lab			3	2
CL-1654	Chemical Technology Lab			3	2
	Total	15	5	14	28

7th Semester (Chemical Engineering)

Course Code	Course name	L	T	P	Credit
HS-1701	Economics	3			3
CL-1701	Plant Design and Economics	3	1		4
OE -1781	Open Elective-I	3			3
CL-1731 to CL-1740	Professional Elective – I	3	1		4
CL-1741 to CL-1750	Professional Elective – II	3	1		4
CL-1791	Major Project – I			12	6
	Total	15	3	12	24

8th Semester (Chemical Engineering)

Course Code	Course name	L	T	P	Credit
CL-1801	Hazards and Safety in Chemical Industries	3	1		4
OE-1881	Open Elective-II	3			3
CL-1831 to CL-1840	Professional Elective – III	3	1		4
CL-1841 to CL-1850	Professional Elective – IV	3	1		4
CL-1891	Major Project – II			12	6
	Total	12	3	12	21

Curriculum for
Bachelor of Technology in
Civil Engineering

3rd semester (Civil Engineering)

Course code	Course name	L	T	P	Credit
CE-1301	Building Planning & Construction	2	---	---	2
CE-1302	Computer Based Numerical Techniques	3	---	---	3
AM-1304	Strength of Materials	3	1	---	4
AM-1301	Fluid Mechanics – I	3	1	---	4
CE-1303	Engineering Geology	2	----	---	2
CE-1351	Building Planning & Construction (Lab.)	---	---	3	2
CE-1352	Computer Based Numerical Techniques(Lab.)	---	---	3	2
AM-1353	Strength of Materials (Lab.)	---	---	3	2
AM-1351	Fluid Mechanics – I(Lab.)	---	---	3	2
CE-1353	Engineering Geology (Lab.)	---	---	3	2
	Total	13	2	12	25

4th semester (Civil Engineering)

Course code	Course name	L	T	P	Credit
CE-1401	Building Materials & Concrete Technology	3	---	---	3
CE-1402	Estimating, Costing & Valuation	3	1	---	4
CE-1403	Survey – I	3	1	---	4
HS-1401	Principles of Management	3	---	---	3
AM-1404	Structural Analysis – I	3	1	---	4
AM-1405	Fluid Mechanics – II	3	1	---	4
CE-1451	Building Materials & Concrete Technology (Lab.)	---	---	3	2
CE-1452	Survey – I (Lab.)	---	---	3	2
AM-1452	Fluid Mechanics – II (Lab.)	---	---	3	2
	Total	18	4	9	28

5th semester (Civil Engineering)

Course code	Course name	L	T	P	Credit
CE-1501	Survey- II	3	1	---	4
CE-1502	Transportation Engineering - I	3	1	---	4
CE-1503	Geotechnical Engineering – I	3	1	---	4
CE-1504	Concrete Structures – I	3	1	---	4
CE-1505	Environmental Engineering - I	3	1	---	4
AM-1501	Structural Analysis – II	3	1	---	4
CE-1551	Transportation Engineering – I (Lab.)	---	---	3	2
CE-1552	Geotechnical Engineering – I (Lab.)	--	---	3	2
AM-1551	Structural Analysis – II (Lab.)	---	---	3	2
	Total	18	6	9	30

6th semester (Civil Engineering)

Course code	Course name	L	T	P	Credit
CE-1601	Concrete Structures - II	3	1	---	4
CE-1602	Transportation Engineering - II	3	1	---	4
CE-1603	Environmental Engineering - II	3	1	---	4
CE-1604	Steel Structures - I	3	1	---	4
CE-1605	Geotechnical Engineering - II	3	1	---	4
CE-1606	Survey Camp	---	---	---	3
CE-1651	Concrete Structures – II (Lab.)	---	---	3	2
CE-1652	Environmental Engineering – II (Lab.)	---	---	3	2
CE-1653	Geotechnical Engineering – II (Lab.)	---	---	3	2
	Total	15	5	9	29

7th semester (Civil Engineering)

Course code	Course name	L	T	P	Credit
CE-1701	Water Resources Engineering - I	3	---	---	3
CE-1702	Construction Planning & Management	3	---	---	3
CE-1703	Steel Structures – II	3	---	---	3
OE-1781	Open Elective - I	3	---	---	3
CE-1791	Project	---	4	---	4
CE-1751	Steel Structures – II (Lab.)	---	---	3	2
CE-1731 to CE-1740	Professional Elective – I	3	1	---	4
	Total	15	5	3	22

8th semester (Civil Engineering)

Course code	Course name	L	T	P	Credit
CE-1801	Computer Aided Design (Civil)	1	---	3	3
CE-1802	Water Resources Engineering - II	3	1	---	4
CE-1803	Earthquake Resistant Design	3	1	---	4
CE-1841 to CE-1850	Professional Elective – II	3	1	---	4
OE-1881	Open Elective – II	3	---	---	3
CE-1891	Project	----	8	---	8
CE-1851	Computer Aided Design (Lab)				
	Total	13	11	3	26

Curriculum for
Bachelor of Technology in
Computer Science and Engineering

3rd Semester (Computer Science & Engineering)

Course Code	Course name	L	T	P	Credit
CS-1301	Data Structures	4	-	-	4
MS-1301	Management of IT Industries	3	-	-	3
CS-1303	Analog & Digital Electronics	4	-	-	4
CS-1304	Foundations of Logical Thought	4	-	-	4
CS-1305	Technical Writing	3	-	-	3
CS-1351	Programming Tools – I (Shell) (Lab)	-	-	3	2
CS-1352	Data Structures (Lab)	-	-	3	2
CS-1353	Analog & Digital Electronics (Lab)	-	-	3	2
	Total	18		9	24

4th Semester (Computer Science & Engineering)

Course Code	Course name	L	T	P	Credit
CS-1401	Analysis of Algorithms	3	-	-	3
CS-1402	Graph Theory & Combinatorics	3	-	-	3
CS-1403	Computer Organization	3	-	-	3
CS-1404	Automata Theory	4	-	-	4
EC-1405	Communication Foundations	3	-	-	3
CS-1405	Contemporary Issues in Information Technology	2	-	-	2
CS-1451	Programming Tools – II (System Call) (Lab)	-	-	3	2
CS-1452	Analysis of Algorithms (Lab)	-	-	3	2
EC-1454	Communication Foundations (Lab)	-	-	3	2
CS-1453	Automata & Compilers (Lab)	-	-	3	2
	Total	18		12	26

5th semester (Computer Science and Engineering)

Course Code	Course name	L	T	P	Credit
CS-1501	Microprocessor and its Application	3	-	-	3
CS-1502	Operating Systems	4	-	-	4
CS-1503	Computer Networks	4	-	-	4
CS-1504	Object Oriented Modeling	3	-	-	3
CS-1505	Operation Research	3	-	-	3
CS-1506	Cryptography	3	-	-	3
CS-1551	Programming Tools – III (Web) (Lab)	-	-	3	2
CS-1552	Microprocessor (Lab)	-	-	3	2
CS-1553	Operating Systems (Lab)	-	-	3	2
CS-1554	Computer Networks (Lab)	-	-	3	2
	Total	20		12	28

6th Semester (Computer Science & Engineering)

Course Code	Course name	L	T	P	Credit
CS-1601	Embedded Systems	3	-	-	3
CS-1602	Scientific Computing	3	-	-	3
CS-1603	Computer Architecture	3	-	-	3
CS-1604	Wireless Network Security	3	-	-	3
CS-1605	Database Management System	4	-	-	4
CS-1606	Software Engineering	3	-	-	3
CS-1652	Network Security (Lab)	-	-	3	2
CS-1653	Embedded Systems (Lab)	-	-	3	2
CS-1654	Database Management System (Lab)	-	-	3	2
CS-1651	Mini Project	-	-	3	2
	Total	19		12	27

7th Semester (Computer Science & Engineering)

Course Code	Course name	L	T	P	Credit
CS-1701	Distributed System	4	-	-	4
CS-1702	Professional Ethics	2	-	-	2
OE-1781	Open Elective – I	3	-	-	3
CS-1731 to CS-1740	Professional Elective – I	3	-	-	3
CS-1741 to CS-1750	Professional Elective – II	3	-	-	3
CS-1791	Project	-	6	-	6
CS-1751	Distributed System (Lab)	-	-	3	2
	Total	15	6	3	23

8th Semester (Computer Science & Engineering)

Course Code	Course name	L	T	P	Credit
CS-1801	Formal Methods	4	-	-	4
CS-1802	Research Trends in CS	3	-	-	3
CS-1831 to CS-1840	Professional Elective – III	3	-	-	3
CS-1841 to CS-1850	Professional Elective – IV	3	-	-	3
OE-1881	Open Elective – II	3	-	-	3
CS-1891	Project	-	6	-	6
	Total	**16**	**6**	-	22

Curriculum for
Bachelor of Technology in
(Electronics and Communication Engineering)

3rd (Electronics and Communication Engineering)

Course Code	Course name	L	T	P	Credit
EC-1301	Principles of Electronics Engineering	3	1	0	4
MA-1302	Mathematics-III	3	1	0	4
CS-1302	Data Structures and Operating Systems	3	0	0	3
MA-1302	Numerical Methods and Statistical Techniques	3	0	0	3
EE-1305	Principles of Electrical Engineering and Measurement	3	0	0	3
EC-1302	Signals and Systems	3	0	0	3
EC-1351	Electronics Engineering Lab	0	0	3	2
EC-1352	Electrical Engineering and Measurement Lab	0	0	3	2
EC-1353	Data Structure Lab	0	0	3	2
	Total	18	2	9	26

4th (Electronics and Communication Engineering)

Course Code	Course name	L	T	P	Credit
EC-1401	Analog Communication	3	1	0	4
EC-1402	Digital Electronics	3	1	0	4
EE-1404	Networks & Systems	3	0	0	3
EC-1403	Electromagnetic Theory	3	1	0	4
EC-1404	Electronic Devices and Circuits	3	0	0	3
HS-1401	Principles of Management	3	0	0	3
EC-1451	Analog Communication Lab	0	0	3	2
EC-1452	Digital Electronics Lab	0	0	3	2
EC-1453	Electronic Devices and Circuits Lab	0	0	3	2
	Total	18	3	9	27

5th (Electronics and Communication Engineering)

Course Code	Course name	L	T	P	Credit
EC-1501	VLSI Technology and Device Modelling	3	0	0	3
EC-1502	Microprocessors and its applications	3	0	0	3
EC-1503	Antenna and Wave Propagation	3	0	0	3
EC-1504	Electronic Circuit Design	3	1	0	4
EC-1505	Digital Communication	3	0	0	3
EE-1505	Automatic Control Systems	3	0	0	3
EC-1551	Microprocessors Lab	0	0	3	2
EC-1552	Electronic Circuit Design Lab	0	0	3	2
EC-1553	Digital Communication Lab	0	0	3	2
EC-1554	Automatic Control Systems Lab	0	0	3	2
	Total	18	1	12	27

6th (Electronics and Communication Engineering)

Course Code	Course name	L	T	P	Credit
EC-1601	Digital Signal Processing	3	0	0	3
EC-1602	RF and Microwave Engineering	3	0	0	3
EC-1603	Data Communication and Networks	3	1	0	4
EC-1604	Optical Communication	3	0	0	3
EC-1605	Microelectronics and VLSI Design	3	0	0	3
EC-1 606	Computer Architecture	3	0	0	3
HS-1601	Communication Skill (Workshop)	0	0	2	0
EC-1651	Digital Signal Processing Lab	0	0	3	2
EC-1652	Microwave Engineering Lab	0	0	3	2
EC-1653	Microelectronics and VLSI Design Lab	0	0	3	2
	Total	18	1	11	25

7th (Electronics and Communication Engineering)

Course Code	Course name	L	T	P	Credit
EC-1701	Mobile and Wireless Communication	3	0	0	3
OE-1781	Open Elective I	3	0	0	3
EC-1731 to EC-1740	Prof. Elective-I	3	1	0	4
EC-1741 to EC-1750	Prof. Elective-II	3	1	0	4
EC-1751	Lab Elective	0	0	3	2
EC-1791	Project	0	0	12	6
	Total	12	2	15	22

8th (Electronics and Communication Engineering)

Course Code	Course name	L	T	P	Credit
OE-1881	Open Elective II	3	0	0	3
EC-1801	Advanced Digital Signal and Image Processing	3	1	0	4
EC-1831 to EC-1840	Prof. Elective-III	3	1	0	4
EC-1841 to EC-1850	Prof. Elective-IV	3	1	0	4
EC-1851	Advanced Digital Signal and Image Processing Lab	0	0	3	2
EC-1891	Project	0	0	12	6
	Total	12	3	15	23

Curriculum for
Bachelor of Technology in
Electrical Engineering

3rd Semester (Electrical Engineering)

Course Code	Course name	L	T	P	Credit
EE-1301	Networks & Systems	3	1	-	4
EE-1302	Electrical measurement and Measuring Instruments (EMMI)	3	1	-	4
EE-1303	Principles of Electronics	3	1		4
CS-1302	Data Structure and Operating Systems	3	-	-	3
MA-1302	Numerical Methods and Statistical Techniques	2	1	-	3
EE-1304	Electrical Engineering Material and Devices	3	-	2/2	3
EE-1351	Networks & Systems (Lab)	-	-	3	2
EE-1352	EMMI (Lab)	-	-	3	2
EE-1353	Principles of Electronics (Lab)	-	-	3	2
CS-1354	Data Structure and Operating Systems (Lab)			3	2
	Total	17	4	14	29

4th Semester (Electrical Engineering)

Course Code	Course name	L	T	P	Credit
EE-1401	Basics of Electrical Machine	3	1	-	4
EE-1402	Basic Control System	3	1	-	4
EE-1403	Power System –I	3	1	-	4
EC-1402	Digital Electronics	3	1	-	4
EC-1403	Electro-Magnetic Theory	2	1	-	3
EE-1451	Electrical Machine-I (Lab)	-	-	3	2
EE-1452	Basic Control System (Lab)	-	-	3	2
EE-1453	Power System –I (Lab)	-	-	3	2
EC-1452	Digital Electronics (Lab)	-	-	3	2
	Total	14	5	12	27

5th Semester (Electrical Engineering)

Course Code	Course name	L	T	P	Credit
EE-1501	AC Electric Machine	3	1	-	4
EE-1502	Advance Control System	3	1	-	4
EE-1503	Power System - II	3	1	-	4
EE-1504	Communication System and Networking	3	1	-	4
HS-1501	Principles of Management	3	-	-	3
EE-1551	AC Electric Machine (Lab)	-	-	3	2
EE-1552	Advance Control System (Lab)	-	-	3	2
EE-1553	Power System – II (Lab)	-	-	3	2
EE-1554	Communication System and Networking (Lab)			3	2
	Total	15	4	12	27

6th Semester (Electrical Engineering)

Course Code	Course name	L	T	P	Credit
EE-1601	Power Electronics	3	1	-	4
EE-1602	Microcontroller & Computer Organization	3	1	-	4
EE-1603	Instrumentation	3	1		4
EE-1604	Applied Control	3	1	-	4
EE-1605	Modern Electrical Machines	3	1	-	4
HS-1601	Communication Skill (Workshop)	0	0	0	0
EE-1607	Power Plant Engineering	3			3
EE-1651	Power Electronics (Lab)	-	-	3	2
EE-1652	Microcontroller & Computer Organization (Lab)	-	-	3	2
EE-1653	Instrumentation (Lab)	-	-	3	2
	Total	18	5	9	29

7th Semester (Electrical Engineering)

Course Code	Course name	L	T	P	Credit
EE-1701	Electrical Drives	3	1	-	4
EE-1702	Renewable Energy Sources and Distributed Generation	3	1	-	4
EE-1731 to EE1740	PE01	3	1	0	4
OE-1781	OE1	3	1	0	4
EE-1751	Electrical Drives (Lab)	-	-	3	2
EE-1752	Project			6	6
	Total	12	4	9	24

8th Semester (Electrical Engineering)

Course Code	Course name	L	T	P	Credit
EE-1801	Advance Power Electronics	3	1	-	4
EE-1831 to EE-1840	PE02	3	1	0	4
EE-1841 to EE-1850	PE03	3	1	0	4
OE-1881	OE2	3	1	0	4
EE-1851	Advance Power Electronics (lab)			3	2
EE-1852	Project			6	6
	Total	12	4	9	24

Curriculum for
Bachelor of Technology in
Information Technology

3rd Semester (Information Technology)

Course Code	Course name	L	T	P	Credit
CS-1301	Data Structures	4	-	-	4
MS-1301	Management of IT Industries	3	-	-	3
CS-1303	Analog & Digital Electronics	4	-	-	4
CS-1304	Foundations of Logical Thought	4	-	-	4
CS-1305	Technical Writing	3	-	-	3
CS-1351	Programming Tools – I (Shell) (Lab)	-	-	3	2
CS-1352	Data Structures (Lab)	-	-	3	2
CS-1353	Analog & Digital Electronics (Lab)	-	-	3	2
	Total	18		9	24

4th Semester (Information Technology)

Course Code	Course name	L	T	P	Credit
CS-1401	Analysis of Algorithms	3	-	-	3
CS-1402	Graph Theory & Combinatorics	3	-	-	3
CS-1403	Computer Organization	3	-	-	3
CS-1404	Automata Theory	4	-	-	4
EC-1405	Communication Foundations	3	-	-	3
CS-1405	Contemporary Issues in Information Technology	2	-	-	2
CS-1451	Programming Tools – II (System Call) (Lab)	-	-	3	2
CS-1452	Analysis of Algorithms (Lab)	-	-	3	2
EC-1454	Communication Foundations (Lab)	-	-	3	2
CS-1453	Automata & Compilers (Lab)	-	-	3	2
	Total	18		12	26

5th Semester (Information Technology)

Course Code	Course name	L	T	P	Credit
CS-1507	Computer Graphics	3	-	-	3
CS-1502	Operating Systems	4	-	-	4
CS-1503	Computer Network	4	-	-	4
CS-1504	Object Oriented Modeling	3	-	-	3
CS-1505	Operations Research	3	-	-	3
CS-1506	Cryptography	3	-	-	3
CS-1551	Programming Tools – III (Web) (Lab)	-	-	3	2
CS-1555	Computer Graphics (Lab)	-	-	3	2
CS-1553	Operating Systems (Lab)	-	-	3	2
CS-1554	Computer Network (Lab)	-	-	3	2
	Total	20		12	28

6th Semester (Information Technology)

Course Code	Course name	L	T	P	Credit
CS-1607	Multimedia Technology	3	-	-	3
CS-1602	Scientific Computing	3	-	-	3
CS-1608	Business Intelligence	3	-	-	3
CS-1604	Wireless Network Security	3	-	-	3
CS-1605	Database Management System	4	-	-	4
CS-1606	Software Engineering	3	-	-	3
CS-1652	Network Security (Lab)	-	-	3	2
CS-1654	Database Management System (Lab)	-	-	3	2
CS-1655	Multimedia Technology (Lab)	-	-	3	2
CS-1651	Mini Project	-	-	3	2
	Total	19		12	27

7th Semester (Information Technology)

Course Code	Course name	L	T	P	Credit
CS-1703	Image Processing	4	-	-	4
CS-1702	Professional Ethics	2	-	-	2
OE-1781	Open Elective – I	3	-	-	3
CS-1731 to CS-1740	Professional Elective – I	3	-	-	3
CS-1741 to CS-1750	Professional Elective – II	3	-	-	3
CS-1791	Project	-	6	-	6
CS-1754	Image Processing (Lab)	-	-	3	2
	Total	15	6	3	23

8th Semester (Information Technology)

Course Code	Course name	L	T	P	Credit
CS-1803	Privacy Preserving Publishing	4	-	-	4
CS-1804	Research Trends in IT	3	-	-	3
CS-1831 to CS-1840	Professional Elective – III	3	-	-	3
CS-1841 to CS-1850	Professional Elective – IV	3	-	-	3
OE-1881	Open Elective – II	3	-	-	3
CS-1891	Project	-	6	-	6
	Total	16	6	-	22

Curriculum for
Bachelor of Technology in
Mechanical Engineering

3rd Semester (Mechanical Engineering)

Course Code	Course name	L	T	P	Credit
ME-1301	Engineering Thermodynamics	3	1		4
AM-1302	Kinematics of Machines	3	1		4
AM-1303	Material Science and Engineering	3			3
AM-1304	Strength of Materials	3	1		4
EE-1305	Basic Electrical and Electronics	3			3
MA-1301	Numerical Methods and Statistical Techniques	3	1		4
ME-1351	Computational Lab			3	2
AM-1352	Material Science Lab			3	2
AM-1353	Strength of Materials Lab			3	2
EE-1354	Basic Electrical and Electronics Lab			3	2
	Total	18	4	12	30

4th Semester (Mechanical Engineering)

Course Code	Course name	L	T	P	Credit
ME-1401	Automatic Control	3	1		4
ME-1402	Industrial Engineering	3			3
ME-1403	Measurement and Metrology	3			3
AM-1401	Fluid Mechanics	3	1		4
ME-1405	Heat and Mass Transfer	3	1		4
AM-1402	Dynamics of Machines	3	1		4
ME-1451/ ME-1452	Measurement and Metrology/ Automatic Control Lab			3	2
ME-1453	Thermal Engineering Lab – I			3	2
AM-1451	Fluid Mechanics and Hydraulics Lab			3	2
	Total	18	4	9	28

5th Semester (Mechanical Engineering)

Course Code	Course name	L	T	P	Credit
ME-1501	Computer Aided Design	3	1		4
ME-1502	Machine Design-I	3	1		4
ME-1503	Manufacturing Science and Technology-I	3	1		4
ME-1504	Steam Power Engineering	3	1		4
HS-1501	Principles of Management	3			3
ME-1551	Computer Aided Design Lab			3	2
ME-1552	Machine Design Lab –I			3	2
ME-1553	Manufacturing Technology Lab-I			3	2
ME-1554	Thermal Engineering Lab – II			3	2
	Total	15	4	12	27

6th Semester (Mechanical Engineering)

Course Code	Course name	L	T	P	Credit
ME-1601	Computer Aided Manufacturing	3	1		4
ME-1602	Machine Design-II	3	1		4
ME-1603	Manufacturing Science and Technology-II	3	1		4
ME-1604	Automobile Engineering	3	-		3
ME-1605	Internal Combustion Engine	3	1		4
HS-1601	Communication Skill (Workshop)			3	0
ME-1651	Computer Aided Manufacturing Lab			3	2
ME-1652	Machine Design Lab –II			3	2
ME-1653	Manufacturing Technology Lab – II			3	2
ME-1654	Thermal Engineering Lab – III			3	2
	Total	15	4	15	27

7th Semester (Mechanical Engineering)

Course Code	Course name	L	T	P	Credit
ME-1701	Refrigeration and Air Conditioning	3	1		4
HS-1701	Economics	3			3
ME-1731 to ME-1740	Professional Elective – I	3	1		4
ME-1741 to ME-1750	Professional Elective – II	3	1		4
OE-1781	Open Elective – I	3			3
ME-1791	Major Project (Stage I)			12	6
ME-1751	Thermal Engineering Lab – IV			3	2
	Total	15	3	15	26

8th Semester (Mechanical Engineering)

Course Code	Course name	L	T	P	Credit
ME-1801	Product Design and Development	3	1		4
ME-1831 to ME-1840	Professional Elective – III	3	1		4
ME-1841 to ME-1850	Professional Elective – IV	3	1		4
OE-1881	Open Elective – II	3			3
ME-1891	Major Project (Stage 2)			12	6
	Total	12	3	12	21

Curriculum for
Bachelor of Technology in
Production and Industrial Engineering

3rd Semester (Production and Industrial Engineering)

Course Code	Course name	L	T	P	Credit
ME-1301	Engineering Thermodynamics	3	1		4
ME-1302	Quality Engineering	3	1		4
AM-1303	Material Science and Engineering	3			3
AM-1304	Strength of Materials	3	1		4
EE-1305	Basic Electrical and Electronics	3			3
MA-1301	Numerical Methods and Statistical Techniques	3	1		4
ME-1351	Computational Lab			3	2
AM-1352	Material Science Lab			3	2
AM-1353	Strength of Materials Lab			3	2
EE-1354	Basic Electrical and Electronics Lab			3	2
	Total	18	4	12	30

4th Semester (Production and Industrial Engineering)

Course Code	Course name	L	T	P	Credit
ME-1401	Automatic Control	3	1		4
ME-1402	Industrial Engineering	3			3
ME-1403	Measurement and Metrology	3			3
AM-1401	Fluid Mechanics	3	1		4
ME-1407	Thermal Engineering	3	1		4
AM-1403	Kinematics and Dynamics of Machines	3	1		4
ME-1451/ ME-1452	Measurement and Metrology/ Automatic Control Lab			3	2
ME-1453	Thermal Engineering Lab			3	2
AM-1451	Fluid mechanics and Hydraulics Lab			3	2
	Total	18	4	9	28

5th Semester (Production and Industrial Engineering)

Course Code	Course name	L	T	P	Credit
ME-1501	Computer Aided Design	3	1		4
ME-1502	Machine Design-I	3	1		4
ME-1503	Manufacturing Science and Technology-I	3	1		4
ME-1505	Operation Research	3	1		4
HS-1501	Principles of Management	3			3
ME-1551	Computer Aided Design Lab			3	2
ME-1552	Machine Design Lab - I			3	2
ME-1553	Manufacturing Technology Lab – I			3	2
ME-1555	Industrial Engineering Lab			3	2
	Total	15	4	12	27

6th Semester (Production and Industrial Engineering)

Course Code	Course name	L	T	P	Credit
ME-1601	Computer Aided Manufacturing	3	1		4
ME-1602	Machine Design-II	3	1		4
ME-1603	Manufacturing Science and Technology-II	3	1		4
ME-1607	Production and Operations Management	3	0		3
ME-1608	Tool Engineering	3	1		4
HS-1601	Communication Skill (Workshop)			3	0
ME-1651	Computer Aided Manufacturing Lab			3	2
ME-1652	Machine Design Lab - II			3	2
ME-1653	Manufacturing Technology Lab – II			3	2
ME-1655	Tool Engineering Lab			3	2
	Total	15	4	15	27

7th Semester (Production and Industrial Engineering)

Course Code	Course name	L	T	P	Credit
ME-1703	Advanced Manufacturing Processes	3	1		4
HS-1701	Economics	3			3
ME-1731 to ME-1740	Professional Elective – I	3	1		4
ME-1741 to ME-1750	Professional Elective – II	3	1		4
OE-1781	Open Elective – I	3			3
ME-1791	Major Project (Stage 1)			12	6
	Total	15	3	12	24

8th Semester (Production and Industrial Engineering)

Course Code	Course name	L	T	P	Credit
ME-1801	Product Design and Development	3	1		4
ME-1831 to ME-1840	Professional Elective – III	3	1		4
ME-1841 to ME-1850	Professional Elective – IV	3	1		4
OE-1881	Open Elective – II	3			3
ME-1891	Major Project (Stage 2)			12	6
	Total	12	3	12	21

Motilal Nehru National Institute of Technology Allahabad

Course structure

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Curriculum Ist Year

B.Tech 1st Year

I-Semester

S.No.	Code	Subject	Lecture	Tutorial	Practical	Credits
1	PH-1101	Physics-I	3	1	-	4
2.	HS-1101/ CS-1101	English Language and Composition / Computer Programming	2	1	-	3
3.	CY-1101/ AM-1101	Chemistry/ Engineering. Mechanics	3	1	-	4
4.	MA-1101	Mathematics-I	3	1	-	4
5.	ME-1101/1102	Engineering Graphics/ Workshop	1	-	3	3
6. *	HS-1102 / PH-1151	Communication Skill Workshop / Physics (Lab)	2 / -	- / -	- / 3	2
7.	CY-1152/ AM-1153	Chemistry (Lab)/ Engineering Mechanics (Lab)	-	-	3	2
8.	HS-1154/ CS-1155	Language Lab/ Computer Programming (Lab)	-	-	3	2
		Total				**24**

II-Semester

S.No.	Code	Subject	Lecture	Tutorial	Practical	Credits
1.	PH-1202	Physics-II	3	1	-	4
2.	HS-1201 / CS-1201	English Language and Composition / Computer Programming	2	1	-	3
3.	CY-1201/ AM-1201	Chemistry/ Engineering Mechanics	3	1	-	4
4.	MA-1201	Mathematics-II	3	1	-	4
5.	ME-1201/1202	Engineering Graphics/ Workshop	1	-	3	3
6.	CE-1201	Environment & Ecology	2	-	-	2
7. *	HS-1202 / PH-1251	Communication Skill Workshop / Physics (Lab)	2 / -	-	- / 3	2
8.	CY-1252/ AM-1253	Chemistry (Lab)/ Engineering Mechanics (Lab)	-	-	3	2
9.	HS-1254/ CS-1255	Language Lab/ Computer Programming (Lab)	-	-	3	2
		Total				26

**Half of the groups will be offered Physics Lab and other half Communication Skill Workshop*

01 -30 Compulsory Courses: *51-70 Laboratory Courses*

PH- Physics , CY- Chemistry , CE- Civil Engineering , HS-Humanities & Social Sciences ,

AM- Applied Mechanics, CS- Computer Science & Engineering, MA- Mathematics, ME- Mechanical Engineering

PHYSICS-I (PH-1101)

UNIT 1: Special Theory of Relativity-Frame of Reference. Galilean Transformation, Inertial and Non-inertial frames, Postulates of Special Theory of Relativity, Michelson-Morley Experiment Lorentz transformation of space and time, Length contraction, Time dilation, Simultaneity in relativity theory, Addition of velocities, Relativistic dynamics, Variation of mass with velocity, Equivalence of mass and energy, Momentum-energy transformation equations. 6(L)

UNIT 2: Thermal Physics- Maxwell-Boltzmann Law of distribution of molecular velocities, Evaluation of r.m.s.velocity and of average and most probable speeds, Mean free path, Transport phenomena in gases. 5(L)

UNIT 3: Geometrical Optics- Combination of thin lenses, Cardinal points of coaxial optical systems, thick lenses, location and properties of cardinal points, Newton's formula, graphical construction of images. Huygen's and Ramsden's eye pieces, Optical Instruments — Spectrometer, Sextant. 6(L)

UNIT 4: Physical Optics

Interference- Condition of observing interference. Production of interference fringes and determination of wavelength using Fresnel's Biprism. Stoke's treatment, Interference due to thin films. Wedge shaped films. Newton's rings. 5(L)

Diffraction- Fresnel's Half Period Zone, Zone Plate, Fraunhofer's diffraction by single slit, double slit. Theory of plane transmission grating. Width of principal maxima. Rayleigh's criterion of resolution. Resolving power of prism and grating. 6(L)

Polarisation- Unpolarised, polarized and partially polarized lights. Polarisation by reflection. Double refraction by uniaxial crystals, Nicol prism, Polaroids, Huygen's theory of double refraction. Half wave and quarter wave plates. Analysis of plane, elliptical and circularly polarized light. Optical activity. Fresnel's theory of optical rotation, Specific rotation, Biquartz and Laurent half-shade polarimeters. 7(L)

UNIT 5 Laser-Characteristics of Laser light, Stimulated and spontaneous emission. Einstein's coefficients, Relative contribution of stimulated and spontaneous emissions, Population inversion, Laser emission, Ruby and He-Ne lasers. 5(L)

Text / Reference Books

- R. Resnik, *Introduction to Special Relativity*, John Wiley & Sons, Inc (2005).
- A. Ghatak, *Optics*, Tata McGraw-Hill, (2008).
- E. Hecht, *Optics*, Addison-Wesley (2002).
- A. Beiser, Concepts of Modern Physics, Tata McGraw-Hill, (2005).
- B. Laud, *Lasers and Non-Linear Optics*, Wiley, (2003)

PHYSICS-II (PH-1202)

UNIT 1: Electrostatics-Gradient, divergence and curl operations, Gauss divergence theorem and Stoke's theorem, Gauss Law in electrostatics and its applications, Poisons and Laplace equations. 6(L)

UNIT 2: Magnetostatics-Biot-Savart's law, Magnetic field of a steady current, Magnetic field due to circular loop at axial points. Working of Helmholtz galvanometer. Ampere's law and its applications, Force on a charged particle in electric and magnetic fields, Magnetic vector potential. 6(L)

UNIT 3: Electrodynamics and electromagnetic waves-Faradays' law of electromagnetic induction. Self and mutual inductance. Energy in Magnetic Field. Energy of a solenoid. Displacement current, Maxwell's equations (integral and differential forms) in free space, Plane wave solution, Propagation of electromagnetic waves in free space, Poynting's theorem. 8(L)

UNIT 4: Quantum Mechanics-Failure of classical concepts, Wave particle duality. Wave packets, Phase and group velocity, Heisenberg's uncertainty principle and its applications, Wave function and its physical interpretation, Probabilities and Normalization, Time independent and dependent SchrÖdinger wave equation and its simple applications. 9(L)

UNIT 5: Magnetic Properties of Materials-Magnetic permeability and susceptibility. Dia, Para, Ferro, Antiferro, Ferri magnetic Materials, Hysteresis curve and its uses. Curie-Weiss Law. Langevin's theory of magnetism. 5(L)

UNIT 6. Solid State Physics- Crystal structure, Space lattice, Unit cell, Miller indices, Interplaner spacing, Characteristic and Continuous, X-ray spectra, Mosley's law, X-ray absorption and diffraction, Bragg's law, Bragg's Diffractometer, Compton effect. 6(L)

Text / Reference Books:

- D. J.Griffiths, *Introduction to Electrodynamics*, Prentice Hall of India, (1999).
- S. Gasiorowicz, *Quantum Physics*, John Wiley & Sons, (2003).
- R. Eisberg and R. Resnik, *Quantum Physics*, John Wiley & Sons, (2007).
- A. Beiser, *Concepts of Modern Physics*, Tata McGraw-Hill, (2005).
- C.Kittel, *Introduction to Solid State Physics*, Wiley 8th, (2004)
- C. P. Poole, Jr. F. J., Owens, *Introduction to Nanotechnology*, John Wiley & Sons, (2009).

ENGLISH LANGUAGE AND COMPOSITION (HS-1101 / HS-1201)

UNIT 1: Remedial English Grammar: Common Errors, Articles, Pronouns, Adjectives, Use of Adjectives, Prepositions, Subject-Verb Agreement, Vocabulary building & comprehension exercises. 12(L)

UNIT 2: Literary Essays-God in this Godless Universe, The Scientist & the Poet, Beauty & the Beast, Freedom, Albert Einstein at School, The Lotus Eater, Shooting an Elephant. 12(L)

UNIT 3: Short Stories-Sparrows, What Men Live By, The Fly, Love Across the SaltDesert, Dr. Heidegger's Experiment, The White Stocking, The Lagoon. 8(L)

UNIT 4: Poetry-On His Blindness, On Killing a Tree, Night of the Scorpion, My Grandmother's House, A River, The Darkling Thrush, Stopping by the Woods. 8(L)

Text / Reference Books:

- Pleasures of Reading, An Anthology of Poems, Orient Longman
- Wood F.T., A Remedial English Grammar for Foreign Students, Macmillan
- Selected Essays and Short Stories, Oxford University Press
- TOEFL & Cambridge IELTS Practice Book.

COMPUTER PROGRAMMING (CS-1101 / CS-1201)

Course Description: This is a first course in programming which intends to introduce students to the foundations of computing, programming and problem-solving. Aim is to develop basic programming skills necessary for engineering education. Students would learn C/C++ programming in a Linux environment. This course has an associated lab with it.

Course Outline:

1. Introduction, LINUX Commands, editors, Files & Directories, Design of algorithms. 4(L)
2. Writing a Simple Program: Learning the form of a C program, Declaring variables, designing program flow and control, using standard terminal I/O functions. 4(L)
3. Fundamental Data Types and Storage Classes, Operators and Expressions Conditional Program Execution Loops and Iteration, Introduction to Abstraction, functions, 6(L)
4. Arrays, Pointers, Structures. 6(L)
5. Introduction to Object Oriented Programming concepts, Classes and Objects, Important C++ constructs. 6(L)
6. The Standard C/C++ Preprocessor, The Standard C/C++ Library. 4(L)

Text/ Reference Books:

- How to solve it by Computer by R. J. Dromey
- The C Programming Language by Brian W. Kernighan, Dennis M. Ritchie
- On to C++ by P H Winston (also available online)
- Structure and Interpretation of Computer Programs by Harold Abelson and Gerald Sussman with Julie Sussman. (Also available online)
- Herbert Schield, Complete reference in C

CHEMISTRY (CY- 1101 / CY-1201)

Unit 1:Chemical Bonding-Ionic Bonding and Covalent Bonding, Valence Bond and Molecular orbital theories of bonding. Bonding in metals, semiconductors and insulators, imperfections in solids. 6(L)

Unit 2:Polymers-Classifications of polymers, types of polymerization and their principles, structure-property relationship, polymer materials of industrial importance, biopolymers. 5(L)

Unit 3:Water chemistry- sources and nature of impurities, characteristics of natural water, water treatment processes, municipal supplied water. 5(L)

Unit 4:Fuels-Classification, calorific values, analysis of solid fuels, liquid fuels and its properties, refining, cracking and reforming of petroleum, knocking and octane and cetane rating, anti-knocking agents. 5(L)

Unit 5:Corrosion- theories of corrosion, types of corrosion, its prevention and control. 4(L)

Green Chemistry: Introduction to green chemistry and its importance. 3(L)

Unit 6:Lubricants- Definition, functions, mechanisms and classifications of lubricants, properties and testing of lubricants. 3(L)

Phase Rule: Derivation of phase rule and its application to one component water system. 2(L)

Adsorption: Definition and classification of adsorption, adsorption of gases on solids, adsorption from solution, applications of adsorptions, theories of adsorptions. 3(L)

Text / Reference Books

- Engineering Chemistry, Jain & Jain, Dhanpat Rai publishing Co., 2012, New Delhi
- Engineering Chemistry, Shashi Chawla, Dhanpat Rai publishing Co., 2012, New Delhi
- Engineering Chemistry, Pahari & Chauhan, Laxmi Publication Ltd.., 2012, New Delhi

ENGINEERING MECHANICS (AM-1101 / AM-1201)

UNIT 1: Introduction to Forces, Moments, Stresses and Strains-Idealizations in Mechanics, Equilibrium of forces and moments, Free body diagram, Simple Stress and Strain, Axially loaded members and Hooke's law. 6(L)

UNIT 2: Centroid & Moment of Inertia- Introduction, Center of Gravity and Centroid, Moments of inertia – Area and Mass Moment of Inertia, Product of inertia, Principal axes and Principal moments of inertia, Transformation of Moment of Inertia. 6(L)

UNIT 3: Structures- Introduction, Classification, Analysis of Plane Trusses- Method of Joints, Method of Sections, Method of Tension Coefficients, Graphical Method, Beams - Shear force and Bending Moment Diagrams. 6(L)

UNIT 4: Friction-Introduction, Laws of Coulomb friction, Angle of friction, Angle of Repose, Cone of Friction, Sliding and Rolling Friction, Rope and Belt Friction, Screw Friction, Wedge Friction. 6(L)

UNIT 5: Principle of Virtual work and Energy-Strain Energy, Virtual Displacement, Principle of Virtual work, Mechanical Efficiency, Work of a force/couple (springs etc.), Potential Energy and equilibrium, stability. 6(L)

UNIT 6: Kinematics and Kinetics of Rigid Bodies- Introduction, Types of motions in plane and space, Rotation of rigid bodies, General Plane motion, D'Alemberts Principle, Force, Mass and Acceleration, Work and Energy, Impulse and Momentum, Gyroscopic motion. 6(L)

UNIT 7: Vibration- Introduction, Free and Forced Vibration, Vibration of rigid bodies. 4(L)

Text / Reference Books

- Beer F.P. and Johnston E.R., Mechanics for Engineers-Volume I -Statics, Volume-II -Dynamics, McGraw Hill,New York.
- Merriam J.L and Kraige L.G., Engineering Mechanics,Volume I-Statics, Volume-II -Dynamics, John Wiley & Sons, New York.
- Shames I.H.,Engineering Mechanics,Prentice Hall,New Delhi.
- R. C. Hibbler, Engineering Mechanics, Vol I and II, Pearson Press, 2002.

COMMUNICATION SKILL WORKSHOP (HS 1102 / HS-1202)

UNIT I. Communication theory- Definition of communication, good and effective communication, barriers and filters, exercise, body language, activity on body language, non-verbal behaviour interpretation, listening skills: active and passive listening, activity on listening skills, feedback mechanism: giving and receiving feedback activity, **4(L)**

UNIT II. Dealing with feelings-Activity on how to deal with feelings and complex feeling, assertiveness, activity, developing assertiveness, activity, self- confidence, quiz on self confidence, strategies for developing confidence, **6(L)**

UNIT III.The Team concept -Elements of teamwork, activity, effective team, essential building blocks of effective team, team player styles, group discussions, types of group discussion: structured and unstructured discussions, strategies for improving decisions, presentation technique, **4(L)**

UNIT IV. Business communication- Business communication, writing business letters and applications, minutes and memorandum, resume writing. **6 (L)**

UNIT V. Corporate grooming- Appearing for interview, corporate dressing and grooming, dining etiquette, communication media etiquette, ethics, exercise on ethical dilemmas, exercise on mock-interview. **4(L)**

Text / References Books

- Communication by C.S. Raayudu, Himalaya Publications.
- Developing Communication Skills by Krishna Mohan, Macmillan India Limited
- Corporate Grooming and Etiquette by Sarvesh Gulati, Rupa publications.
- Group Discussions and Interviews by Priyadarshi Patnayak, foundation books publications

MATHEMATICS-I (MA-1101)

UNIT 1:Infinite series & Mean Value Theorems-Sequences and series, Convergence, Comparison test, Integral test, D'Alembert ratio test, Rabbe's test, logarithmic test, Cauchy root test, Leibnitz's rule, Rolle's Theorem, Lagrange and Cauchy Mean Value Theorem. 6(L)

UNIT 2:Function of Several Variables-Limit, Continuity (ε–δ definition) and Differentiability, Partial differentiation. Homogeneous Functions- Euler's theorem, change of variables, Jacobian, Taylor's theorem for functions of several variables. Extrema of functions of multi-variables, saddle points, Lagrange method of undetermined multipliers. 7(L)

UNIT 3:Integral Calculus-Multiple integrals (Double & Triple Integral), change of order of integration, Area of bounded region, arc length of curve, volume and surface area of solid of revolution, multiple integral by change of variables, Dirichlet integrals, Moment of inertia, Center of gravity. 7(L)

UNIT 4:Beta and Gamma Functions-Improper integrals, Beta Function, Gamma functions, Improper Integrals involving a parameter. 3(L)

UNIT 5:Vector Calculus-Gradient, Directional derivatives, Divergence and Curl, line integral and Green's theorem, surface and volume integrals, Gauss, Stoke's theorems and their applications. 8(L)

UNIT 6:Ordinary Differential Equation-Existence and Uniqueness of solutions of First order ODE, Exact Differential Equation, Solution of Linear Differential Equation, Higher order Linear Differential Equation, Solutions of Homogeneous and Non-homogeneous ODE (CF+PI), Variation of parameters, Undetermined coefficients, Power series method, System of linear simultaneous ODE. 8(L)

Text/ Reference Books:

- Jain and Iyenger, Advanced Engineering Mathematics, Narosa Pub. House
- Thomas and Finney, Calculus, Addison Wesley
- B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers.
- Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons.

MATHEMATICS II (MA-1201)

UNIT 1: Partial Differential Equation-First order PDE, Formation of PDE, Classification of solution: Complete, General and Particular solution, Lagrange's linear PDE, Non-Linear First Order PDE, Some Standard form -I, II, III, IV. Charpit's method. Higher Order Homogeneous linear PDE with constant coefficients, C. F. & P.I, Non-homogeneous PDE with constant coefficients, C. F. & P. I. 7(L)

UNIT 2: Application of Partial Differential Equation-Classification of Linear PDE of second order: Elliptic, Parabolic and Hyperbolic, Solution of separation of variables. Interior and Exterior BVP : Heat & Wave equation, Laplace Equation. 6(L)

UNIT 3: Laplace Transform-Laplace transformation and its properties, Unit – step, Impulse and Periodic functions, Error Function. Inverse Laplace Transform, Convolution Theorem, Evaluation of Integral by Laplace Transform, Application of Laplace transform to solution of ODE & PDE. 7(L)

UNIT 4: Fourier Series & Fourier Transform-Fourier series, Convergence of Fourier Series, Half range series. Fourier Integral, Fourier sine and Cosine Integral, Complex form of Fourier Integral. Fourier Transform, Fourier Sine and Cosine Transform, Finite sine and cosine transform, Convolution theorem, Application of Fourier Transform to boundary value problems. 7(L)

UNIT 5: Linear Algebra and Matrices-Vector spaces, Subspaces, Linear dependence and independence, Basis and dimension, Dimension theorem. Linear Transformation, Rank – Nulity Theorem (Statement only), Computation of Rank and nullity of LT, Solution of linear simultaneous algebraic equations. 6(L)

UNIT 6: Eigen Values and Eigen Vectors-Eigen values and Eigen vectors, Cayley-Hamilton theorem, Application of Eigen Values and Eigen Vectors: Quadratic form, Diagonalization, Canonical forms and Solving system of first order differential equations. 6(L)

Text/ Reference Books:

- Jain and Iyenger, Advanced Engineering Mathematics, Narosa Pub. House
- B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers.
- Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons.

ENVIRONMENT AND ECOLOGY (CE-1201)

UNIT 1: Introduction-Introduction and scope, Indian Scenerio of Natural Resources, Conservation of natural resources.4(L)

UNIT 2: Ecosystem-Ecosystem and its basic concept, Structure and function of an ecosystem, Food chains, food webs and ecological pyramids, Ecological succession. 5(L)

UNIT 3: Biodiversity-Biodiversity and its conservation, types of biodiversity, Hot spots and threats to biodiversity, National and global scenario, Biodiversity conservation. 3(L)

UNIT 4 : Environmental Pollution-Environmental Pollution: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution and Nuclear hazards. 6(L)

UNIT 5: Social Issue-Sustainable development, Environmental ethics: Issues and possible solutions, Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents, Wasteland reclamation. 4(L)

UNIT 6: Environmental Laws-Environmental laws/Acts, EPA. Act.1986, Water Act. etc. 2(L)

Text/ Reference Books

- A Basic Course in Environmental Studies. Deswal & Deswal. Pub. Dhanpat Rai & Sons
- Environmental Studies. Bharucha. Pub. University of Press
- Ecology. Odum. Pub. Oxford & IBH
- Environmental Engineering. Peany et.al. Pub. McGraw Hill
- A Text Book of Environmental Engg. Venugpal Rao. Pub. PHI

ENGINEERING GRAPHICS (ME-1101 / ME-1201)

1. Introduction to engineering graphics, basics of sheet sizes and choice of scale, title block, types of lines & geometric constructions, proper layout (spacing) of problems on the drawing sheet.Lettering, dimensioning details. 2(L)
2. Orthographic projection of points, projection of lines, Orthographic views. 2(L)
3. Sectioning of solids. 1(L)
4. Details of fasteners (e.g. bolt, nut, stud, screw etc), terminology of threads, types (e.g. V, square, acme, single/multi start, left/right handed etc). 1(L)
5. Elementary idea of joints (e.g. riveted, welded, soldered, adhesive etc), otherjoints (like cotter, knuckle etc.) along with their relative advantages and disadvantages and application areas, various couplings and their applications. 4(L)
6. Introduction to Modeling Software. 3(L)

Text/ Reference Books:

- Machine Drawing, by K.L.Narayana, P.kannaiah&K.VenkataReddy New Age International publishers.
- Machine Drawing includes AutoCAD, by AjeetSingh,Tata McGraw Hill Publishing Company Ltd.
- Elementary Engineering Drawing, by Bhatt ND Charotar Publishing.
- Machine Drawing by Bhatt N D Charotar Publishing.
- Engineering Drawing, by M. B. Shah & B. C. Rana Pearson Education India.
- Engineering Drawing, by Jolhe D. A. Tata McGraw Hill Education.

WORK SHOP (ME-1102/ME-1202)

COURSE DESCRIPTION AND OBJECTIVE

UNIT-I: Concept of Manufacturing- Manufacturing definition; Role of materials, processes and systems in manufacturing; Classification and brief introduction of engineering materials such as metals & alloys, Ceramics and Glasses, and Plastics; Classification and brief introduction of manufacturing processes, Guide to processing of metals & alloys 4(L)

UNIT-II: Casting Processes- Elements of Green Sand Mould; Method of Preparation of Green Sand Mould; Casting Defects 3(L)

UNIT-III :Metalworking Processes- Classification of Metalworking Processes-brief introduction of bulk and sheet metal processes, Hot Vs Cold Working; Hot and Cold Rolling; Types of Rolling Mills, Hot and Cold Forging, Hot and Cold Extrusion, Cold Drawing 3(L)

UNIT-IV: Machining Processes:-Classification of machining processes & machine tools; Construction, Specification and Working of Lathe Machine and Drilling Machine; Study about Facing, Turning, Parting, Grooving, Threading and Knurling, and Drilling and other hole related operations 5(L)

UNIT-V: Fabrication Processes- Classification of Welding Operations, Types of Joints & Welding Positions; Brief description of Arc, Resistance and Gas welding techniques. Brazing and Soldering 4(L)

UNIT-VI Brief introduction of Newer Machining Processes- such as EDM, ECM, USM, and LBM. Modern Trends in Manufacturing: Automation, Concept of CAD, CAM and CIM. 5(L)

Text/ Reference Books

- Workshop Technology (Vol. I & II) by Hajra, Choudhury and Roy (Manufacturing Processes)
- Workshop Technology (Vol. I & II) by Raghuvansi (Manufacturing Processes)
- Workshop Technology by Khurmi and Gupta (Manufacturing Processes)

PHYSICS LAB (PH-1151 / PH-1251)

List of Experiments

1. Height of a building by Sextant
2. Co-efficient of thermal conductivity of rubber by Lee's disc method
3. Focal length of combination of two thin lenses by Nodal slide assembly
4. Determination of Boltzman Constant
5. Interference of light: Newton's ring
6. Interference of light: Fresnel's biprism
7. Fraunhofer diffraction: Double slit
8. Diffraction by a plane transmission grating
9. Specific rotation of sugar using Polarimeter
10. Specific resistance of a wire by Carry-Foster's Bridge
11. Verification of Stefan's law
12. Variation of magnetic field along the axis of a current carrying coil
13. Hysteresis loop for a ferromagnetic material (M-B) curve.
14. Determination of Plank's Constant.
15. Electromagnetic Induction.
16. To calculate the current and voltage sensitivities of a moving coil galvanometer.
17. To measure the Susceptibility of paramagnetic solution by Quinck's Tube Method.
18. To determine resistivity by four probe method.

CHEMISTRY LAB (CY-1152 / CY-1252)

List of Experiments

A) General introduction and description of Balance operation.

B) Volumetric titrations:
   1. Determination of available chlorine in a supplied bleaching powder sample by iodometry.
   2. Determination of type and extent of alkalinity in a supplied water sample by titrating with standard sulphuric acid solution.
   3. Determination of total and permanent hardness in a supplied water sample by titrating with standard EDTA solution.
   4. Determination of Ca^{2+} and Mg^{2+} hardness in a supplied water sample by titrating with standard EDTA solution.
   5. Determination of Fe^{2+} in a supplied solution by titrating with standard $K_2Cr_2O_7$ solution using ferrous ammonium sulphate as intermediate solution and diphenylamine as internal indicator.
   6. Determination of Fe^{2+} in a supplied solution by titrating with standard $K_2Cr_2O_7$ solution using ferrous ammonium sulphate as intermediate solution and Potassium Ferricyanide as external indicator.

C) Engineering experiments:
   1. Determination of flash point of a lubricating oil using Pensky-Martin's apparatus.
   2. Determination of flash point of a lubricating oil using Abel's apparatus.
   3. Determination of aniline point of a lubricating oil using Aniline point apparatus.
   4. Determination of viscosity of a lubricating oil using Redwood viscometer.
   5. Determination of steam emulsion number of a lubricating oil.
   6. Determination of viscosity of a solution containing polymer.

ENGINEERING MECHANICS LAB (AM-1153 / AM-1253)

List of Experiments:

1. Determination of Coefficient of friction of Sliding boxes of different materials on wooden inclined plane.
2. Determination of Coefficient of friction of roller on wooden inclined plane.
3. Determination of Coefficient of friction between rope and a fixed pulley.
4. Determination of mass moment of inertia of a fly-wheel.
5. Determination of forces in fixed and moving arm of a truss.
6. Determination of velocity ratio, mechanical advantage and efficiency of a screw jack.
7. Verification of law of Polygon of forces.
8. Verification of resultant and moment of forces by parallel for apparatus

LANGUAGE LAB (HS-1154 / HS-1254)

UNIT 1: Remedial English Grammar-Common Errors, Articles, Pronouns, Adjectives, Use of Adjectives, Prepositions, Subject-Verb Agreement, Vocabulary building & comprehension exercises. 12 (L)

UNIT 2:LiteraryEssays:1.God in this Godless Universe, 2.The Scientist & the Poet, 3.Beauty & the Beast, 4.Freedom, 5.Albert Einstein at School, 6.The Lotus Eater, 7.Shooting an Elephant 12 (L)

UNIT 3:ShortStories-1.Sparrows, 2.What Men Live By, 3.The Fly, 4.Love Across the SaltDesert, 5.Dr. Heidegger's Experiment, 6.The White Stocking, 7.The Lagoon 8(L)

UNIT 4:Poetry-1. On His Blindness, 2.On Killing a Tree, 3. Night of the Scorpion, 4. My Grandmother's House, 5. A River, 6.The Darkling Thrush, 7. Stopping by the Woods. 8(L)

Text/ Reference Books

- Pleasures of Reading, An Anthology of Poems, Orient Longman
- Wood F.T., A Remedial English Grammar for Foreign Students, Macmillan
- Selected Essays and Short Stories, OxfordUniversity Press
- TOEFL & Cambridge IELTS Practice Book.

COMPUTER PROGRAMMING LAB (CS-1155 / CS-1255)

Course Outline:

1. Introduction, LINUX Commands, editors, Files & Directories, Design of algorithms. 4(L)
2. Writing a Simple Program: Learning the form of a C program, Declaring variables, designing program flow and control, using standard terminal I/O functions. 4(L)
3. Fundamental Data Types and Storage Classes, Operators and Expressions Conditional Program Execution Loops and Iteration, Introduction to Abstraction, functions. 6(L)
4. Arrays, Pointers, Structures. 6(L)
5. Introduction to Object Oriented Programming concepts, Classes and Objects, Important C++ constructs. 6(L)
6. The Standard C/C++ Preprocessor, The Standard C/C++ Library. 4(L)

Text/ Reference Books

- How to solve it by Computer by R. J. Dromey
- The C Programming Language by Brian W. Kernighan, Dennis M. Ritchie
- On to C++ by P H Winston (also available online)
- Structure and Interpretation of Computer Programs by Harold Abelson and Gerald Sussman with Julie Sussman, (Also available online)
- Herbert Schield, Complete reference in C.

ANNEXURE – C

Motilal Nehru National Institute of Technology Allahabad

Academic Calendar for Odd Semester

2012-2013

NE 2012		
1		
2		
3		
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19		
20		
21		
22		
23		
24		
25	On-Line (Off Campus)Registion	
26		
27		
28		
29		
30		

JULY 2012		
S	1	
M	2	
T	3	
W	4	
T	5	
F	6	
S	7	
S	8	
M	9	Registration of all Final year B. Tech., M.Tech., MBA, M.Sc. & MSW
T	10	
W	11	
T	12	
F	13	
S	14	Registration of B.Tech. 5th sem. (only for CS, IT & ECE interested in internship) & newly admitted M.Tech (Part Time & Sponsored), M.Sc., MSW and Ph.D students(1st semester)
S	15	
M	16	
T	17	Registration of newly admitted B.Tech.students (1st semester)
W	18	
T	19	
F	20	
S	21	
S	22	
M	23	Registration of B.Tech. 3rd Sem., Ph.D.(All Intermediate semesters) MBA & MCA 1st & 3rd sem Orientation programme for B.Tech. 1st year students (Deeksharambh)
T	24	Registration of B.Tech 5th Sem. and M.Tech 1st Sem.
W	25	Commencement of Classes for Odd semester
T	26	
F	27	
S	28	
S	29	
M	30	
T	31	

AUGUST 2012		
W	1	
T	2	
F	3	
S	4	
S	5	
M	6	Last date for late registration
T	7	
W	8	
T	9	
F	10	
S	11	
S	12	
M	13	
T	14	
W	15	
T	16	
F	17	
S	18	
S	19	
M	20	
T	21	
W	22	
T	23	
F	24	
S	25	
S	26	
M	27	
T	28	
W	29	
T	30	
F	31	

SEPTEMBER 2012		
S	1	
S	2	
M	3	
T	4	
W	5	
T	6	
F	7	First notification of shortage of attendance
S	8	
S	9	
M	10	
T	11	First Mid Semester Examination
W	12	
T	13	
F	14	
S	15	
S	16	
M	17	
T	18	
W	19	
T	20	
F	21	
S	22	
S	23	
M	24	
T	25	
W	26	
T	27	
F	28	
S	29	
S	30	

OCTOBER 2012		
M	1	
T	2	
W	3	
T	4	
F	5	
S	6	
S	7	
M	8	
T	9	
W	10	
T	11	
F	12	
S	13	
S	14	
M	15	
T	16	
W	17	
T	18	
F	19	Mid Semester Break
S	20	
S	21	
M	22	
T	23	
W	24	
T	25	
F	26	
S	27	
S	28	
M	29	
T	30	Second notification of shortage of attendace
W	31	Second Mid Semester Examination

NOVEMBER 2012		
T	1	Second Mid Semester Examination
F	2	
S	3	
S	4	
M	5	
T	6	Avishkar + Annual Athletic Meet 2012-13
W	7	
T	8	
F	9	
S	10	Convocation - 2012
S	11	
M	12	
T	13	
W	14	
T	15	
F	16	Declaration of shortage of attendance.
S	17	
S	18	
M	19	
T	20	
W	21	
T	22	
F	23	End of Classes for Odd Semester
S	24	
S	25	
M	26	Final shortage of attendance to be notified. Last date of Mercy Application in Department. End Semester Practical Examinations.
T	27	End Semester Practical Examinations. Meeting of DUGC/DPGC to consider Mercy Application.
W	28	End Semester Practical Examinations. Meeting of SUGC/SPGC/Standing Committee.
T	29	End Semester Practical Examinations. Senate meeting (if required)
F	30	End Semester Practical Examinations.

DECEMBER 2012		
S	1	End Semester Practical Examinations.
S	2	
M	3	
T	4	End Semester Theory Examinations.
W	5	
T	6	
F	7	
	8	
S	9	
M	10	
T	11	
W	12	
T	13	
F	14	
S	15	
S	16	
M	17	Submission of Grades
T	18	
W	19	Declaration of Results
T	20	Winter Vacation
F	21	
S	22	
S	23	
M	24	
T	25	
W	26	
T	27	
F	28	
S	29	
S	30	
M	31	

Motilal Nehru National Institute of Technology Allahabad

Academic Calendar for Even Semester

2012-2013

JANUARY 2013	
F 1	Winter Vacation
S 2	Registration of
S 3	B.Tech.(6th & 8th), M.Tech.(2nd,4th & 6th)
M 4	MCA(2nd,4th & 6th),MBA (2nd,&4th),
T 5	M.Sc.(2nd, & 4th) & MSW (2nd,& 4th)
W 6	B. Tech. (2nd,& 4th)
T 7	Ph.D
F 8	Commencement of Classes for Even Semester
S 9	
S 10	
M 11	
T 12	Last and final date for late registration
W 13	
T 14	
F 15	
S 16	
S 17	
M 18	
T 19	
W 20	
T 21	
F 22	
S 23	
S 24	
M 25	
T 26	
W 27	
T 28	
F 29	CULRAV,GNOSIOMANIA
S 30	
S 31	

FEBRUARY 2013	
F 1	CULRAV, GNOSIOMANIA
S 2	
S 3	
M 4	
T 5	
W 6	
T 7	
F 8	
S 9	
S 10	
M 11	
T 12	
W 13	
T 14	
F 15	
S 16	
S 17	
M 18	
T 19	
W 20	
T 21	First Mid Semester Examination
F 22	First notification of shortage of attendance First Mid Semester Examination
S 23	
S 24	
M 25	
T 26	
W 27	
T 28	

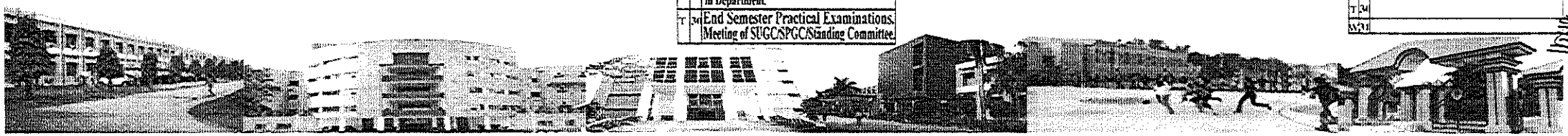
MARCH 2013	
F 1	
S 2	
S 3	
M 4	
T 5	
W 6	
T 7	
F 8	
S 9	
S 10	
M 11	
T 12	
W 13	
T 14	
F 15	
S 16	
S 17	
M 18	
T 19	
W 20	
T 21	Second notification of shortage of attendance
F 22	
S 23	
S 24	
M 25	
T 26	
W 27	
T 28	
F 29	Mid Semester Break
S 30	
S 31	

APRIL 2013	
M 1	
T 2	
W 3	Second Mid Semester Examination
T 4	
F 5	
S 6	
S 7	
M 8	
T 9	
W 10	
T 11	
F 12	
S 13	
S 14	
M 15	
T 16	
W 17	
T 18	VIRASAT
F 19	
S 20	
S 21	
M 22	
T 23	
W 24	
T 25	
F 26	End of Classes for Even Semester and Declaration of shortage of attendance
S 27	
S 28	
M 29	End Semester Practical Examinations. Last date of Mercy application in Department. Meeting of DUGC/DPGC on Mercy application in Department.
T 30	End Semester Practical Examinations. Meeting of SUGC/SPGC/Standing Committee

MAY 2013	
W 1	End Semester Practical Examinations. Senate meeting (if required)
T 2	
F 3	End Semester Practical Examinations.
S 4	
S 5	
M 6	
T 7	
W 8	
T 9	End Semester Theory Examinations.
F 10	
S 11	
S 12	
M 13	
T 14	
W 15	
T 16	
F 17	
S 18	
S 19	
M 20	Submission of Grades
T 21	
W 22	Declaration of Results
T 23	
F 24	Registration for supplementary and Summer semester examination
S 25	
S 26	
M 27	
T 28	
W 29	
T 30	
F 31	

JUNE 2013	
S 1	
S 2	
M 3	
T 4	
W 5	
T 6	
F 7	
S 8	
S 9	
M 10	1st mid - semester (summer) examination
T 11	
W 12	
T 13	
F 14	
S 15	
S 16	
M 17	Supplementary Examinations.
T 18	
W 19	
T 20	
F 21	
S 22	
S 23	
M 24	
T 25	
W 26	2nd mid - semester (summer) examinataion
T 27	
F 28	
S 29	
S 30	

JULY 2013	
M 1	M. Tech. thesis and Ph.D. Grade submission
T 2	Submission of Grade for supplementary Examination
W 3	
T 4	Result of final year M.Tech. and Ph.D.
F 5	Declration of results of supplymentary examination
S 6	
S 7	
M 8	
T 9	Registration of all Final year B.Tech. M.Tech.,MCA,MBA,M.Sc.&MSW.
W 10	
T 11	
F 12	Registration of B.Tech. 5th Sem. (only for CSJT & ECE interested in intership) and newly admitted M.Tech.,M.Sc. MSW and Ph.D. students (1st semester)
S 13	
S 14	
M 15	Summer semester examination
T 16	
W 17	
T 18	Registration of newly admitted B.Tech. students (1st semester)
F 19	
S 20	
S 21	
M 22	
T 23	Registration of B.Tech. 3rd sem., Ph.D.(All Intermediate semester),MBA & MCA 1st & 3rd Sem.
W 24	Commencement of Classes for Odd semester
T 25	Submission of Grade for summer semester Examination
F 26	
S 27	Declaration of results of summer semester Examination
S 28	
M 29	
T 30	
W 31	



ANNEXURE – D

मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान इलाहाबाद
इलाहाबाद– 211004 (भारत)
Motilal Nehru National Institute of Technology, Allahabad
Allahabad- 211004 (India)

SPGC meeting was convened on 28.03.2012 to consider the mercy appeals of the following Students:

1. Mr. Y.K. Gupta (2004RCE06)
2. Mr. Umesh Pratap Singh (2008RPH04)
3. Mr. Amit Kumar Singh (2010PD06)
4. Mr. Aman Chauhan (2010MB69)
5. Mr. Brahma Nand Bhargav (2010MB51)
6. Ms. Sarika Kalra (2008REE01)

In the meeting following members were present:

1.	Dr. Ramesh Pandey	(Convener DPGC AMD)
2.	Dr. A.K. Sachan	(" " CED)
3.	Dr. R.S. Yadav	(" " CSED)
4.	Dr. Satya Sheel	(" " EED)
5.	Dr. V.K. Srivastava	(" " ECED)
6.	Dr. A.D. Bhatt	(" " MED)
7.	Dr. A.K.Singh	(" " GIS Cell)
8.	Dr. Ambalika Sinha	(" " HSS)
9.	Dr. Sahdeo Padhey	(" " Maths)
10	Dr. S. N. Pandey	(" " Physics)
11.	Dr. H.N. Kar	(Outgoing Chairman SPGC)
12.	Dr. Vinod Yadava	(Senate Member)
13.	Dr. A.K. Singh	(Chairman SUGC)
14.	Dr. S.K. Duggal	(Special Invitee)
15.	Dr. Sarvesh K Tiwari	(Special Invitee)

Following are the recommendations:

1. Sri Y.K. Gupta (2004RCE06) be readmitted to the Ph.D Programme, ~~then be allowed to deliver his open seminar and submit the thesis~~ by December 2012.
2. Mr. Umesh Pratap Singh (2008RPH04) be readmitted in the Ph.D Programme however, the time period for submission of Ph.D. thesis will be governed by the P.G. manual with effect from the date of his first registration.

3. Mr. Amit Kumar Singh (2010PD06) was on semester leave for the even semester of the session 2010-11 and odd semester of the session 2011-12 because of his critical illness, the committee recommends that the transcript of 2nd and 3rd semesters be withdrawn by showing semester leaves for the two semesters and ACD be removed as his SPI/CPI of 1st semester was 8.0 as per records. The committee also recommends that his stipend be continued from the current semester.
4. Mr. Aman Chauhan (2010MB69) be allowed to clear his ACD of III semester by taking courses, suggested by the department in which he has obtained C grade, in academic session 2012-13 as minimum CPI requirement of 6 must be met in every semester for continuation in the course.
5. Mr. Brahma Nand Bhargav's (2010MB51) Programme be terminated as his CPI is below 6 in all the three semesters. A decision to this effect has already been taken in 39th senate meeting held on 27/01/2012.
6. Mercy appeal of Ms. Sarika Kalra (2008REE01) be sent back to HOD (EED) for providing semester performance records as according to convener DPGC she has accumulated poor grades in the interim period and this record is not available in the Dean's (Academic) office.

It is being put before you for your kind approval.

Dr. Ramesh Pandey 2/4/12 Dr. A.K. Sachan 2/4/12 Dr. R.S. Yadav 2/4/12 (Dr. Satya Sheel) Dr. V.K. Srivastava 2-4-12

Dr. A.D. Bhatt Dr. A.K. Singh Dr. Ambalika Sinha 2/4/12 Dr. Sahdeo Padhey 3-04-12 Dr. S. N. Pandey 2/4/12

Dr. H.N. Kar 02/04/12 Dr. Vinod Yadava 2/4/12 Dr. A.K. Singh

2/4/12

(Sanjay Chaubey)
Chairman SPGC

09.04.2012

ANNEXURE – E

कार्यालय अधिष्ठाता (शैक्षिक)
मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान इलाहाबाद
इलाहाबाद - 211004 (भारत)
Office of the Dean Academic
Motilal Nehru National Institute Of Technology Allahabad
Allahabad – 211004 (India)
Phone: 0532-2271109, 2271110
Fax : 0532-2545341, 2545677
Website: www.mnnit.ac.in

Minutes of the meeting of the Committee constituted by the Director for the propose the methodology to be adopted to attract good quality students to be admitted in M.S.W. and M.Sc. (Mathematics and Scientific Computing) programmes, held on 16.03.2012 at 4.30 PM in the office of the Dean (Academic).

Following persons ~~were~~ attended the meeting.

1. Prof. S. K. Duggal, Dean (Academic) - Chairman
2. Prof. H. N. Kar, Professor - Member
3. Prof. A. D. Bhatt, Professor - Member
4. Dr. Naresh Kumar, Deptt. of Physics - Member
5. Dr. Sarvesh K. Tiwar, Dy. Registrar (Academic) - Member Secretary

The recommends that the following methodology be adopted for attracting good quality students in these programmes:

A. <u>M.Sc. (Mathematics and Scientific Computing) programme:</u>

(i). The minimum eligibility criteria for admission to the programme may be Bachelor of Science (B.Sc.) with Mathematics as a major subject with at least 60% marks. For candidates belonging to SC/ST category, the minimum eligibility requirement be 55% in B.Sc. with Mathematics as a major subject.

(ii). The selection of candidates may be done on the basis of JAM (Joint Admission Test for M.Sc.) scores, above the qualifying marks, conducted by IITs, for the year of admission.

(iii). The course may run only if 50% of the total seats are filled up.

B. <u>Master of Social Work (M.S.W.) Programme:</u>

(i). The minimum eligibility for admission to the programme may be graduate degree with atleast 60% marks. For candidates belonging to the SC/ST category, the minimum eligibility requirement may be 55% marks in graduation.

(ii). The selection of candidates for the programme may be done only on the basis of a written test to be conducted by the Institute. The question paper of the test may be got prepared by the experts outside the Institute. The syllabus of the test may be defined by the department.

(iii). The course may run only if 50% of the total seats are filled up.

31.03.2012 (S. K. Duggal) | 29/3/12 (H. N. Kar) | 29/3/12 (A. D. Bhatt) | 29/3/12 (Naresh Kumar) | 29/03/12 (Sarvesh K. Tiwari)

SOLAR ENERGY AND ITS APPLICATIONS
(Professional elective for M.Tech students)

MODIFIED SYLLABUS

L-T-P (4-0-0)

The energy crisis- causes and options, solar energy option – availability and land area requirements.
Solar radiation outside the earth's atmosphere and at the earth's surface, instruments for measuring solar radiation, solar radiation geometry, basic earth-sun angles, flux on tilted surfaces.
Liquid flat-plate collectors – design and performance parameters: overall loss coefficient, collector heat removal factor, collector efficiency, solar air heaters: types and performance analysis, concentrating collectors: cylindrical parabolic, paraboloidal dish, central receiver collector, solar ponds: thermal analysis. Energy storage: sensible, latent and thermo-chemical.
Solar thermal power generation: low, medium and high temperature cycles, solar cooling and air-conditioning, Goswami cycle for combined cooling and power, drying and desalination, solar air and water heating, solar passive architecture.
Solar photovoltaic power generation: monocrystalline, polycrystalline and amorphous cells, Fabrication and performance of SPV modules.
Solar-hydrogen economy and its future implications.

REFERENCES

(A) 'Solar Energy – principles of thermal collection and storage' by Sukhatme and Nayak, Tata McGraw-Hill, III edition, 2008

(B) 'Solar Energy – fundamentals and applications' by Garg and Prakash, Tata McGraw-Hill, 1997

(C) 'Principles of Solar Engineering' by Goswami, Kreith and Kreider, Taylor & Francis, II edition, 2000.