13th MEETING OF

SENATE

AGENDA

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA

DUE DATE OF MEETING: 3rd December, 2009

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

Agenda	:	13th Meeting of the Senate
Venue	:	Senate Hall, NIT, Kurukshetra
Date & Time	:	03.12.2009 at 11:30 am.

Item No.	Agenda Item	Pages
13.1	To confirm the minutes of the 12th meeting of the Senate held on 19.01.2009	1-11
13.2	To note the Action Taken Report on the minutes of the 12th meeting of the Senate held on 19.01.2009	12-16
13.3	To consider and approve decisions taken in 22nd to 26th meetings of Standing Committee on Senate Affairs (SCSA)	17-180
13.4	To consider the request of B.Tech. 2006 batch students for revision of multiplication factor for calculation of percentage of marks	181-192
13.5	To consider amendment in Ph.D Ordinance as per UGC (Minimum Standards and Procedure for awards of M.Phil/Ph.D Degree) Regulation,2009 published in the Gazette of India on July 11, 2009	193-196
	Any Other Item	

Item 13.1 To confirm the minutes of the 12th meeting of the Senate held on 19.01.2009

The minutes of the 12th meeting of the Senate held on 19.01.2009 were circulated to all the members. No comments were received on the minutes. The minutes are enclosed as Appendix 13.1 from page 2 to 11.

The Senate may confirm the same.

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136 119

Minutes of the 12th meeting of the Senate of National Institute of Technology, Kurukshetra held on Monday, 19th January, 2009 at 11.00 am in the Senate Hall of the Institute

The following were present:

1	Dr. M.N Bandyopadhyay Director NIT, Kurukshetra	Chairman
2	Dr. Krishna Gopal Professor, Electrical Engg. Deptt. NIT, Kurukshetra	Member
3	Prof. R K Bansal Professor, Civil Engineering Department NIT, Kurukshetra	Member
4	Dr. T K Garg Professor, Mech. Engg. Deptt. NIT, Kurukshetra	Member
5	Dr. S P Jain Professor Electrical Engineering Department NIT, Kurukshetra	Member
6	Dr. V K Arora Professor, Civil Engineering Department NIT, Kurukshetra	Member
7	Dr. V K Sehgal Professor Civil Engineering Department NIT, Kurukshetra	Member
8	Dr. S K Sharma Professor Mechanical Engineering Department NIT, Kurukshetra	Member

9.	Dr. K S Kasana Professor Mechanical Engineering Department NIT, Kurukshetra	Member
10.	Dr. K B Singh Professor Department of Humanities & Social Sciences NIT, Kurukshetra	Member
11.	Dr. D V Singh Professor Mathematics Department NIT, Kurukshetra	Member
12.	Dr. Kuldeep Kumar Professor Mathematics Department NIT, Kurukshetra	Member
13.	Dr. S.S.Rattan Professor Mechanical Engineering Deptt. NIT, Kurukshetra	Member
14.	Dr. K.S. Sandhu Professor Electrical Engineering Deptt. NIT, Kurukshetra	Member
15.	Dr. Sudhir Kumar Professor Mechanical Engineering Department NIT Kurukshetra	Member
16.	Dr. Baldev Setia Professor Civil Engineering Department NIT, Kurukshetra	Member
17.	Dr. Rajender Kumar Professor Department of Humanities & Social Sciences NIT, Kurukshetra	Member

18.	Dr. Brahmjit Singh Professor Electronics & Comm. Engg. Department NIT, Kurukshetra	Member
19.	Dr. (Ms.) Minati Baral Professor Chemistry Department NIT, Kurukshetra	Member
20.	Dr. Diwan Singh Professor Civil Engineering Department NIT, Kurukshetra	Member
21.	Dr. S.K. Madan Professor Civil Engineering Department NIT, Kurukshetra	Member
22.	Dr. H.K. Sharma Professor Civil Engineering Department NIT, Kurukshetra	Member
23.	Dr. (Ms.) Lillie Dewan Professor Electrical Engineering Department NIT, Kurukshetra	Member
24.	Dr. S.N. Sachdeva Professor Civil Engineering Department NIT, Kurukshetra	Member
25.	Dr. Dixit Garg Professor Mechanical Engineering Department NIT, Kurukshetra	Member
26.	Dr. S.K. Mahna Professor Physics Department NIT, Kurukshetra	Member

27.	Dr. B.K. Kaushik Professor Physics Department NIT, Kurukshetra	Member
28.	Dr. J.K. Quamara Professor Physics Department NIT, Kurukshetra	Member
29.	Dr. P.J. Philip Professor Hum. & Social Sciences Department NIT, Kurukshetra	Member
30.	Dr. R.S. Bhatia AP, EED & Chairman Deptt. of Computer Applications NIT, Kurukshetra	Special Invitee
31.	Dr. D.P. Singh Assistant Professor & Chairman Chemistry Department NIT, Kurukshetra.	Special Invitee
32.	Dr. A.K. Singh Asstt. Professor & Chairman Computer Engineering Department NIT, Kurukshetra	Special Invitee
33.	Dr. Ashwani Jain Assistant Professor, Civil Engg. Deptt. Professor Incharge (Academic Affairs & Senate) NIT, Kurukshetra	Special Invitee
34.	Sh. G.R Samantaray Registrar (Incharge) National Institute of Technology Kurukshetra	Secretary, Senate

The following members could not attend the meeting:

1.	Dr. A Swarup Professor Electrical Engineering Department NIT, Kurukshetra.	Member

2. Dr. S.P. Chakarvarti — Member
Professor
Physics Department
NIT, Kurukshetra

Item 12.1: **To confirm the minutes of the 11th meeting of the Senate held on 08.02.2008 and to discuss the comments of Dr. S.K Madan, Professor in Civil Engineering Department on Item No. 11.8(ii)**

The Senate discussed the comments of Dr. S.K Madan, Professor, Civil Engg. Department which were received in response to minutes recorded under item 11.8(ii). It was decided that the recording of the minutes was correct. The Senate confirmed the minutes of the 11th meeting of the Senate held on 08.02.2008 as circulated to the members of the Senate and as per details furnished in the agenda item.

Item 12.2: **To note the Action Taken Report on the minutes of the 10th meeting of the Senate held on 29.11.2007**

The Senate noted the actions taken on the minutes of the 10th meeting of the Senate held on 29.11.2007 as per details furnished in the agenda item.
Under item 10.15, a committee was constituted for considering award of medals and prizes to M.Tech., MBA and MCA students. The Senate requested Convener of the committee to submit its report by 21.1.2009, so that further action could be taken for award of medals and prizes in the 6th Convocation of the Institute to be held on 28.01.2009. It was also decided that in place of Dr. R.C Bhattacharjee, who has proceeded on long leave, Dr. P.J Philip, be appointed a Member of the Committee in his capacity as Chairman, Business Administration Department.
Under item 10.17, a committee was constituted for reviewing the Ordinance of Studies, Regulations and Scheme of Master of Technology in the Institute. The Senate requested Convener of the committee to submit its report at the earliest possible.
The Senate decided that at least three Senate meetings be held in a calendar year.

Item 12.3: **To note the Action Taken Report on the minutes of the 11th meeting of the Senate held on 08.02.2008**

The Senate noted the actions taken on the minutes of the 11th meeting of the Senate held on 08.02.2008. It was decided that, in future, an additional column mentioning the minutes recorded under the item be inserted in the Action Taken Report.

Item 12.4: **To apprise the Senate of the agenda and decisions taken in 15th to 21st meetings of Standing Committee on Senate Affairs (SCSA) and to consider and approve the same**

The Senate considered and approved the decisions taken in the seven meetings (from 15th to 21st) of Standing Committee on Senate Affairs which took place after the 11th meeting of the Senate.

It was brought to the notice of the Senate by the Chairman, Computer Engg. Deptt. that as the Department is starting full time M.Tech. Computer Engg. Course from the Academic Session 2009-2010, therefore the minutes of Item No. 1 of the 18th SCSA meeting held on 3.9.2008 may be confirmed by the Senate keeping in view the time bound and urgent nature of the item. The item was to be placed before the BOG in its meeting to be held on 20.01.2009 for approval and further necessary action. The minutes of the concerned item were confirmed by the Senate.

Item 12.5: **To ratify the action taken by the Chairman, Senate in approving the Scheme and Syllabi of B. Tech 5th & 6th Semester Information Technology**

It was brought to the notice of the Senate that the number of contact hours for 5th and 6th Semesters were fixed as 32 per week and 31 per week respectively. As per the existing practice, the contact hours should have been 35 per week for each Semester. On the request of Chairman, Computer Engg., the Senate allowed the proposed Scheme to be operative for the current Semester. However, for the next session, i.e. 2009-10, it was decided that a Committee constituted by the Chairman Senate will look into the matter and recommendations of the same be implemented after due approval.

Item 12.6: **To note the admission status of various UG/PG Courses for the Academic Session 2008-2009 at National Institute of Technology, Kurukshetra.**

The Senate noted the admission status of students for the Academic Session 2008-09 as per details furnished in the agenda item.

It was decided that, in future, statistical analysis of the admission record be presented before the Senate.

Item 12.7: **To consider approval for students to be awarded degrees in the 6th Convocation scheduled to be held on 28th January, 2009**

The Senate considered and approved the award of degrees to the graduates of B.Tech., M.Tech., MBA and Ph.D. of NIT, Kurukshetra in the 6th Convocation scheduled to be held on 28th January, 2009, as detailed in the agenda item 12.7 and supplementary agenda item 12.7(a). The minutes of the item were confirmed by the Senate.

It was reaffirmed that the eligibility for award of degree be ascertained as the date of Senate meeting and the degrees should be awarded to the students of all the previous batches who complete their degrees with a gap.

Item 12.8: **To consider award of one medal in the memory of Dr. R.P Singh to the Topper of Final Year of Mechanical Engg. Branch instead of two medals (For toppers of second and third year Mechanical Engineering)**

The Senate considered the request of the wife of Late Dr. R. P. Singh for reducing the number of medals from two to one which was proposed to be awarded to the topper of Final Year of Mechanical Engg. Branch.

The Senate was of the view that any existing award should not be discontinued because of lack of support from the trust/donator. Dr. Baldev Setia, in his capacity as President of the Alumni Association, offered to cover the shortfall of funds. In view of the above, it was decided that two Dr. R P Singh medals be awarded as per past practice and that as a one time measure, the Alumni Association be requested to provide additional funds for the award of medals. Further, it was decided that the committee already constituted for the purpose for considering award of medals and prizes to MBA/MCA/M.Tech., under item 10.15 of 10th meeting of the Senate, be requested to look into the issue and give its recommendations. The minutes of the item were confirmed by the Senate.

Item 12.9: **To consider approval for the students to be awarded Medals and Certificates in the 6th Convocation scheduled to be held on 28th January, 2009**

The Senate considered and approved the award of medals and prizes including award of Dr. R. P. Singh medals as per past practice.

It was brought to the notice of the Senate that the system of awarding the major project toppers on the basis of marks obtained is not in consonance with the grading system. It was decided that, in future, the DRC of the departments be empowered to decide the major project awards.

Item 12.10: **To consider the format of degree to be awarded to the MBA Students in the 6th Convocation of the Institute to be held on 28th January, 2009.**

The Senate considered the format of degree to be awarded to the MBA students. Several discrepancies in the format were brought to the notice and modifications were also suggested. It was decided to constitute a committee consisting of Dr. B. K. Kaushik and Dr. P. J. Philip for finalizing the format with relevant inputs from Senators. Chairman Senate was authorized to approve the format as the degrees were to be awarded in the 6th Convocation. It was decided that format for MCA degree should also be prepared.

Item 12.11: **To consider reconstitution of Standing Committee on Senate Affairs**

The Senate considered and approved the following constitution of Standing Committee on Senate Affairs in light of the new composition of the Senate under NIT Act 2007:

i) All Deans
ii) All Professor Chairpersons of Departments
iii) Two Senior-most Professors of the Institute, not covered under (i) and (ii) above
iv) Special invitees as approved by the Chairman, Senate
v) Registrar as Secretary

The Standing Committee on Senate Affairs shall be chaired by the Director.

Item 12.12: **To consider and approve the revised scheme of MBA Degree Programme**

The Senate considered and approved the Revised Scheme and Syllabi of MBA Degree Programme effective from Academic Session 2008-2009 with some suggestions for modification. The Chairman, Business Administration Deptt., was requested to incorporate the suggested changes.

tem 12.13: To consider and approve changes proposed in the scheme of B.Tech. Computer Engineering and Information Technology.

The Senate considered and approved changes proposed in the Scheme of B.Tech. Computer Engineering and Information Technology.

tem 12.14: To consider the reports of two Workshops on examination reforms & rationalization of B.Tech. Scheme held on 19.12.2008 & 10.01.2009 respectively

The Senate considered the reports of two Workshops on "Examination Reforms on IIT pattern" & "Rationalization of B.Tech. Scheme" held on 19.12.2008 & 10.01.2009 respectively. Some members raised objections on some of the observations of experts of the second workshop as reported by the Coordinators. After lengthy discussion, it was decided that another workshop be held by inviting experts from other IITs to arrive at a broader consensus.

tem 12.15: To consider and approve modified scheme and syllabi of B.Tech. IEM 7th & 8th Semesters

The Senate considered and approved the Modified Scheme and Syllabi of B.Tech. IEM 7th and 8th Semesters with some suggestions for modification. The Chairman, Mechanical Engg. Deptt. was requested to incorporate the changes and get the approval of the Chairman Senate for its implementation next semester.

em 12.16: To consider the request of Chairman Electronics & Comm. Engg. Department to review Clause R-7.4.1 of Ph.D Ordinance & regulations

The Senate considered the request of Chairman Electronics & Comm. Engg. Department to review Clause R-7.4.1 of Ph.D Ordinance & regulations. Views were expressed in favour of and against the item under consideration. Finally, the discussions veered towards the formation of a committee to look into the issue. At this point, Professor In-charge (Academic Affairs and Senate) intervened and brought to the notice of the members that provision to the same already exists under Clause R-7.1.4 of the Ordinance of Studies for the Degree of Doctor of Philosophy (Ph.D) of the Institute and all such issues can be dealt with under this Clause.

Item 12.17: **To consider the request of old B.Tech students for granting mercy chance for appearing in their remaining papers**

The Senate considered the request of old B.Tech. students for granting mercy chance for appearing in their remaining paper(s). It was decided that a committee be constituted by the Director for taking decision in this regard. The committee would give its recommendations considering the future implications also.

Item 12.18: **To consider the proposal sent by Executive Director of INDO-US Science and Technology Forum requesting the NIT, Kurukshetra to act as host institute for Research Internship in Science & Engineering Program**

At the outset, Prof. R. K. Bansal, Deafi (Academic), apprised the members of the salient points of the proposal sent by Executive Director of INDO-US Science and Technology Forum requesting the NIT, Kurukshetra to act as host institute for Research Internship in Science & Engineering Program. The Senate considered and approved the proposal.

Tabled Item 12.19: **To consider draft constitution of students representatives**

The draft constitution of student representatives as submitted by the students was considered. It was decided that the required students' body to look after the academic matters of the students be constituted as per the decision taken in the 21st SCSA meeting. A committee approved by the Director will go to IIT Madras, Chennai to study the draft constitution of Students Representatives there and give its recommendations.

The meeting ended with a vote of thanks to the Chair.

(G. R. Samantaray)
Registrar (Incharge) & Secretary, Senate
NIT, Kurukshetra

Approved

(Dr. M. K. Tiwari)
Director & Chairman, Senate

Item 13.2 To note the Action Taken Report on the minutes of the 12th meeting of the Senate held on 19.01.2009

The Action Taken Report on the minutes of the 12th meeting of the Senate held on 19.01.2009 is as under:-

Item No.	Agenda Item	Minutes of the Item	Action taken
12.1	To confirm the minutes of the 11th meeting of the Senate held on 8.2.2008 and to discuss the comments of Dr. S.K. Madan, Professor in Civil Engineering Department on Item No. 11.8 (ii)	The Senate discussed the comments of Dr. S.K Madan, Professor, Civil Engg. Department which were received in response to minutes recorded under item 11.8(ii). It was decided that the recording of the minutes was correct. The Senate confirmed the minutes of the 11th meeting of the Senate held on 08.02.2008 as circulated to the members of the Senate and as per details furnished in the agenda item.	Minutes of the meeting were confirmed No further action is required
12.2	To note the Action Taken Report on the minutes of the 10th meeting of the Senate held on 29.11.2007	The Senate Noted the actions taken on the minutes of the 10th meeting of the Senate held on 29.11.2007 as per details furnished in the agenda item. Under item 10.15, a committee was constituted for considering award of medals and prizes to M.Tech., MBA and MCA students. The Senate requested Convener of the committee to submit its report by 21.1.2009, so that further action could be taken for award of medals and prizes in the 6th Convocation of the Institute to be held on 28.01.2009. It was also decided that in place of Dr. R C Bhattacharjee, who has proceeded on long leave, Dr. P J Philip, be appointed a Member of the Committee in his capacity as Chairman, Business Administration Department. Under item 10.17, a committee was constituted for reviewing the Ordinance of Studies, Regulations and Scheme of Master of Technology in the Institute. The Senate requested Convener of the committee to submit its report at the earliest possible. The Senate decided that at least three Senate meetings be held in a calendar year.	No further action is required except that the report of the committee constituted for reviewing the Ordinance of Studies, Regulations and Scheme of Master of Technology in the Institute is awaited
12.3	To note the Action Taken Report on the minutes of the 11th meeting of the Senate held on 8.2.2008	The Senate noted the actions taken on the minutes of the 11th meeting of the Senate held on 08.02.2008. It was decided that, in future, an additional column mentioning the minutes recorded under the item be inserted in the Action Taken Report.	Action taken

12.	To apprise the Senate of the agenda and decisions taken in 15th to 21st meetings of Standing Committee on Senate Affairs (SCSA) and to consider and approve the same	The Senate considered and approved the decisions taken in the seven meetings (from 15th to 21st) of Standing Committee on Senate Affairs which took place after the 11th meeting of the Senate. It was brought to the notice of the Senate by the Chairman, Computer Engg. Deptt. that as the Department is starting full time M.Tech. Computer Engg. Course from the Academic Session 2009-2010, therefore the minutes of Item No. 1 of the 18th SCSA meeting held on 3.9.2008 may be confirmed by the Senate keeping in view the time bound and urgent nature of the item. The item was to be placed before the BOG in its meeting to be held on 20.01.2009 for approval and further necessary action. The minutes of the concerned item were confirmed by the Senate.	No further action required
12.5	To ratify the action taken by the Chairman, Senate in approving the Scheme and Syllabi of B.Tech 5th & 6th Semester Information Technology	It was brought to the notice of the Senate that the number of contact hours for 5th and 6th Semesters were fixed as 32 per week and 31 per week respectively. As per the existing practice, the contact hours should have been 35 per week for each Semester. On the request of Chairman, Computer Engg., the Senate allowed the proposed Scheme to be operative for the current Semester. However, for the next session, i.e. 2009-10, it was decided that a Committee constituted by the Chairman Senate will look into the matter and recommendations of the same be implemented after due approval.	Action taken
12.6	To note the admission status of various UG/PG Courses for the academic session 2008-09 at National Institute of Technology, Kurukshetra	The Senate noted the admission status of students for the Academic Session 2008-09 as per details furnished in the agenda item. It was decided that, in future, statistical analysis of the admission record be presented before the Senate.	Action taken
12.7	To consider approval for students to be awarded degrees in the 6th Convocation scheduled to be held on 28th January, 2009	The Senate considered and approved the award of degrees to the graduates of B.Tech., M.Tech., MBA and Ph.D. of NIT, Kurukshetra in the 6th Convocation scheduled to be held on 28th January, 2009, as detailed in the agenda item 12.7 and supplementary agenda item 12.7(a). The minutes of the item were confirmed by the Senate. It was reaffirmed that the eligibility for award of degree be ascertained as the date of Senate meeting and the degrees should be awarded to the students of all the previous batches who complete their degrees with a gap.	Action taken

12.8	To consider award of one medal in the memory of Dr. R.P Singh to the topper of Final Year of Mechanical Engg. Branch instead of two medals (for toppers of second and third year Mechanical Engineering)	The Senate considered the request of the wife of Late Dr. R. P. Singh for reducing the number of medals from two to one which was proposed to be awarded to the topper of Final Year of Mechanical Engg. Branch. The Senate was of the view that any existing award should not be discontinued because of lack of support from the trustidonator. Dr. Baldev Seta, in his capacity as President of the Alumni Association, offered to cover the shortfall of funds. In view of the above, it was decided that two Dr. R P. Singh medals be awarded as per past practice and that as a one time measure, the Alumni Association be requested to provide additional funds for the award of medals. Further, it was decided that the committee already constituted for the purpose for considering award of medals and prizes to MBA/MCA/M.Tech., under item 10.15 of 10th meeting of the Senate, be requested to look into the issue and give its recommendations. The minutes of the item were confirmed by the Senate.	As per past practice Dr. R.P Singh mecals were awarded to the toppers of Second and Third Year of Mech. Engg. Branch after taking additional funds from the Alumni Association. The report of the committee is awaited for further decision in this regard.
12.9	To consider approval for the students to be awarded Medals and Certificates in the 6th Convocation scheduled to be held on 28th January, 2009	The Senate considered and approved the award of medals and prizes including award of Dr. R. P. Singh medals as per past practice. It was brought to the notice of the Senate that the system of awarding the major project toppers on the basis of marks obtained is not in consonance with the grading system. It was decided that, in future, the DRC of the departments be empowered to decide the major project awards.	Action taken
12.10	To consider the format of degree to be awarded to the MBA students in the 6th Convocation of the Institute to be held on 28th January, 2009.	The Senate considered the format of degree to be awarded to the MBA students. Several discrepancies in the format were brought to the notice and modifications were also suggested. It was decided to constitute a committee consisting of Dr. B. K. Kaushik and Dr. P. J. Philip for finalizing the format with relevant inputs from Senators. Chairman Senate was authorized to approve the format as the degrees were to be awarded in the 6th Convocation. It was decided that format for MCA degree should also be prepared.	Action taken
12.11	To consider reconstitution of Standing Committee on Senate Affairs	The Senate considered and approved the following constitution of Standing Committee on Senate Affairs in light of the new composition of the Senate under NIT Act 2007: i) All Deans ii) All Professor Chairpersons of Departments iii) Two Senior-most Professors of the Institute, not covered under (i) and (ii) above iv) Special invitees as approved by the Chairman, Senate v) Registrar as Secretary The Standing Committee on Senate Affairs shall be chaired by the Director.	Action taken

12.12	To consider and approve revised scheme of MBA Degree Programme	The Senate considered and approved the Revised Scheme and Syllabi of MBA Degree Programme effective from Academic Session 2006-2009 with some suggestions for modification. The Chairman, Business Administration Deptt., was requested to incorporate the suggested changes.	Action taken
12.13	To consider and approve changes proposed in the scheme of B.Tech Computer Engineering and Information Technology	The Senate considered and approved changes proposed in the Scheme of B.Tech. Computer Engineering and Information Technology.	Action taken
12.14	To consider the reports of two Workshops on examination reforms & rationalization of B.Tech. Scheme held on 19.12.2008 & 10.01.2009 respectively	The Senate considered the reports of two Workshops on "Examination Reforms on IIT pattern" & "Rationalization of B.Tech. Scheme" held on 19.12.2008 & 10.01.2009 respectively. Some members raised objections on some of the observations of experts of the second workshop as reported by the Coordinators. After lengthy discussion, it was decided that another workshop be held by inviting experts from other IITs to arrive at a broader consensus.	Action taken
12.15	To consider and approve modified scheme and syllabi of B.Tech. IEM 7th & 8th Semesters	The Senate considered and approved the Modified Scheme and Syllabi of B.Tech. IEM 7th and 8th Semesters with some suggestions for modification. The Chairman, Mechanical Engg. Deptt. was requested to incorporate the changes and get the approval of the Chairman Senate for its implementation next semester.	Action taken
12.16	To consider the request of Chairman Electronics & Comm. Engg. Department to review Clause R-7.4.1 of Ph.D Ordinance & regulations	The Senate considered the request of Chairman Electronics & Comm. Engg. Department to review Clause R-7.4.1 of Ph.D Ordinance & regulations. Views were expressed in favour of and against the item under consideration. Finally, the discussions veered towards the formation of a committee to look into the issue. At this point, Professor Incharge (Academic Affairs and Senate) intervened and brought to the notice of the members that provision for the same already existed under Clause R-21.4 of the Ordinance of Studies for the Degree of Doctor of Philosophy (Ph.D) of the Institute and all such issues can be dealt with under this Clause.	No further action required
12.17	To consider the request of old B.Tech students for granting mercy chance for appearing in their remaining papers	The Senate considered the request of old B.Tech. students for granting mercy chance for appearing in their remaining paper(s). It was decided that a committee be constituted by the Director for taking decision in this regard. The committee would give its recommendations considering the future implications also.	Action taken

12.18	Any other item with the permission of the Chair	At the outset, Prof. R. K. Bansal, Dean (Academic), apprised the members of the salient points of the proposal sent by Executive Director of INDO-US Science and Technology Forum requesting the NIT, Kurukshetra to act as host institute for Research Internship in Science & Engineering Program. The Senate considered and approved the proposal.	Action taken.
12.19	To consider draft constitution of students representatives	The draft constitution of student representatives as submitted by the students was considered. It was decided that the required students' body to look after the academic matters of the students be constituted as per the decision taken in the 21st SCSA meeting. A committee approved by the Director will go to IIT Madras, Chennai to study the draft constitution of Students Representatives there and give its recommendations.	Formation of Students' Body to look after the academic matters and the draft constitution of students representatives are under process

Item 13.3 To consider and approve decisions taken in 22nd to 26th meetings of Standing Committee on Senate Affairs (SCSA)

After 12th meeting of the Senate, five meetings of SCSA (from 22nd to 26th) were held. The minutes of these meetings had already been circulated to all the members of Senate which have been enclosed as Appendix 13.3 from page 18 to 180.

The Senate may consider and approve the decisions taken in the above mentioned meetings of Standing Committee of Senate Affairs.

Appendix 13.3

NATIONAL INSTITUTE IF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./2009/SCSA/22nd mtg./ Dated: 16.04.2009

Minutes of the 22nd SCSA meeting held on 01.04.2009 at 11.00 am in the Board Room of the Institute

The following were present:

1. Dr. M N Mukhyopadhyay, Director — In Chair
2. Dr. Krishna Gopal, Dean (P&D)
3. Prof. R K Bansal, Dean (Academic)
4. Dr. T K Garg, Professor, Mech. Engg. Deptt.
5. Dr. S P Jain, Dean (Student Welfare and T&P)
6. Dr. V K Arora, Professor, Civil Engg. Deptt.
7. Dr. S K Sharma, Dean (Estate, Const. & Elect. Mtc.)
8. Dr. K S Kasana, Chairman, Mech. Engg. Deptt.
9. Dr. A Swarup, Chairman, Electrical Engg. Deptt.
10. Dr. Kuldeep Kumar, Chairman, Mathematics Deptt.
11. Dr. Baldev Setia, Chairman, Civil Engg. Deptt.
12. Dr. Rajender Kumar, Controller of Examinations
13. Dr. Brahmjit Singh, Chairman, Elect. & Comm. Engg. Deptt.
14. Dr. S K Mahna, Chairman, Physics Deptt.
15. Dr. P J Philip, Chairman, Hum. & Social Sc. & Business Admin. Deptt.
16. Dr. R S Bhatia, Chairman, Computer Applications Deptt.
17. Dr. D P Singh, Chairman, Chemistry Deptt.
18. Dr. Ashwani Jain, Prof. Incharge (Academic Affairs & Senate)
19. Sh. R P S Lohchab, Registrar — Secretary, SCSA

The following decisions were taken:

1. To consider the request of some B.Tech. students for appearing in supplementary exam.

   The request of some B.Tech. students for appearing in supplementary exam was discussed and it was decided that, henceforth, all the B.Tech. students who have re-appear in any paper of Odd and Even Semesters be allowed to appear in both odd semester and even semester examinations simultaneously during the end semester examinations. The decision of the SCSA will be taken to the next meeting of the Senate for final approval.

2. Any other item

Under any other item the following issues were discussed:

1. The requests received from Sh. R K Sharma, Director of Sports and Sh. Zile Singh, Lecturer, Physical Education for changing the nomenclature of the Physical Education Wing were discussed and it was decided that the same be placed in next meeting of the Senate for consideration.

2. A Committee consisting of Prof. J. K Bansal, Dr. Brahmjit Singh and Dr. Rajendra Kumar decided that the recommendation of awarding the marks on pro-rata basis in respect of Sh. Tushar Goyal, Roll No. 1263/06 in the subject of Microelectronics (ECT-309) for B Tech. 5th Semester Examination held in Nov./Dec. 2008 may be approved. The matter was considered and the SCSA approved the same.

The meeting ended with a vote of thanks to the Chair.

(R P S Lohchab)
Registrar & Secretary, SCSA

Approved

(M N Bandyopadhyay)
Director

To

The Dean Academic affairs

NIT Kurukshetra

Kurukshetra-136114

Date- February 17, 2009

Respected Sir

Subject: - Permission to appear for supplementary examination

We would like to bring to your kind notice that the students of our college are not being allowed to appear for the supplementary papers this semester. This is in accordance to the newly established rule that students appearing for odd semesters supplementary examination can do so only in odd semester and the same analogy stands for the even semester examination.

However, this rule has pushed the students of batch of 2006 into a dilemma. A large no of students have not managed to secure passing marks in their third and fifth

Semester examination and now according to the rule, they can appear for the supplementary papers in the seventh semester only.

If the students are not allowed to clear the supplementary papers in their sixth semester most of them will not be eligible to sit for job placements in the seventh semester and their careers will be adversely affected. It is our humble request that the rule be so modified that students are allowed to appear for supplementary papers in any semester. We do understand that such a drastic change in rules may not be feasible for the administration, hence we request you to kindly grand us a one time opportunity for the students who have a standing supplementary. For your future reference, the list of the students pleading for the modification in the law has been attached.

Thanking you

Yours faithfully

Batch of 2006

	Roll no.	NAME	
1	1425/06	Vinod Kumar	
2	1435/06	Arvind Kumar	
3	1434/06	Hemant Kumar	
4	1532/06	sumedh Kalne	
5	1451/06	Bhupender Kumar	
6	1617/06	Amit Hooda	
7	1438/06	Prasenjit Biswas.	
8	1408/06	Adrip Gupta	
9	1281/03	Amit Raj	
10	1071/05	[illegible]	
11	1424/06	ANKUR KATARIA	
12	1426/06	SUNIL	
13	1429/06	VIPIN KR.	
14	1406/06	Kamal Gupta	
15	1391/06	VARUN GOEL	
16	1627/06	Anubhav Singh	
17	1629/06	Vikas Singh	
18	1630/06	Sai Abhishek	
19	1663/06	P. R. Arvind	
20	1641/06	Nitin Bhargava	
21	1632/06	Anshul Gupta	
22	1666/06	Shashank Gupta	
23	1664/06	Jitender Singh	
24	1659/06	Lokesh Meena	
25	1655/06	Preeti Singhal	

Vinod Kumar
Arvind
Hemant Kumar
Sumedh Kalne
Bhupender
Amit
Prasenjit
Adrip
Amit Raj
Ankur
Sunil
Vipin
Kamal
Varun
Singh
Vikas
P. Arvind
Nitin Bhargava
Anshul
Singh
Rameez
Preeti

Name	Roll No	Signature
[redacted]	229/06	
[redacted]	129-2/06	
[redacted]	1224/06	
[redacted]	1263/06	
[redacted]	1255/06	
[redacted]	1209/06	
[redacted]	1324/06	
[redacted]	1345/06	
[redacted]	1291/06	
[redacted]	1295/06	
[redacted]	40/05	
[redacted]	49/05	
[redacted]	1311/06	
[redacted]	1275/06	
[redacted]	518/06	
[redacted]	81/04	
[redacted]	37/04	
[redacted]	49/05	
[redacted]	1242/06	
[redacted]	1227/06	
[redacted]	1795/06	
[redacted]	1796/06	
[redacted]	1802/06	
[redacted]	1822/06	
[redacted]	258/03	
[redacted]	1807/06	
[redacted]	1825/06	
[redacted]	1797/06	
[redacted]	1661/06	

56)	Sanjay Tiwari	1537/06	
57	Akhilesh Ghorle	1524/06	
58	Shrikant Bhatia	1563/06	
59	Armaan	1520/06	
60	Amit Kumar	1544/06	
61	Gyaneshwar	1504/06	
62	Nishad Raja	1535/06	
63	Shrikant	1533/06	
64	Jai Prakash	1550/06	
65	Pankaj	345/05	
66	Manish	1028/06	
67	Pradeep	1027/06	
68	Purushottam	1061/06	
69	Ritu	1049/06	
70	Sohan	1063/06	
71	Amit	1058/06	
72	Gisi	1057/06	
73	Utsav	1064/06	
74	Mohit Srivastava	1153/06	
75	P.M Prakash	1154/06	
76	Prakash Sharma	1156/06	
78	Dimple Gadgil	1152/06	
77	Vilas Mehta	1109/06	
79	Sumeet Veer	1111/06	

81	Satyendra Dubey	1215/06
82	Akshat Kandran	1289/06
83	Gagandeep	1299/06
84	Shreya Kumar	1303/06
85	Hye Bity	1309/06
86	Hriththlang King Bukoil	1317
87	Nishant	1610/06
89	Mohit Agarwal	1501/06
90	Tarun Bihari	1787/9

Item 11.7: To consider the request from B.Tech students for abolishment of Block System and to introduce re-evaluation of answer sheets

The request of B.Tech students for abolishment of 'Block System' and to introduce re-evaluation of answer sheets was discussed the house authorized the Director to constitute a Committee to look into the request made by the students. The recommendations to be made by the Committee will be brought back to the Senate for its approval

Item 11.8: Any other item

(i) Under any other item, Dr. S.K. Chakarvarti, Chairman, Physics Department pointed out that the details of the MoU signed with the Concordia University, Montreal, Canada should be circulated in the Institute. The Director informed that the MoU as signed has since been circulated in all Departments. The broader details of the MoU are being worked out. In the meantime faculty members could send their suggestions to the Director regarding implementation of the MoU

(ii) Dr. Diwan Singh, Professor, Civil Engg. Department was permitted by the Chair to raise a point regarding the basis for change of branch after the completion of B.Tech (1st Year). After brief discussion, it was decided to look into the details of the criteria and to suggest an alternative mode. This was to be done by the Academic Section

The meeting ended with a vote of thanks to the Chair

(R.P.S.Lohchab)
Registrar & Member Secretary, Senate

Approved

(M.N. BANDYOPADHYAY)
Director and Chairman, Senate

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA 136119

No. Dean (Acad.)/ [illegible] Dated: 5.2.2008

In view of the decision taken by the Senate in its 11th meeting held on 8.2.2008 under Item No. 11.7 regarding abolishing of Block System for B.Tech students, the Hon'ble Director has constituted the following Committee to consider the issue in detail:

1. Dr. T.K. Garg, Professor, MED — Chairman
2. Dr. Brahmjit Singh, Chairman, EC & CE — Member
3. Dr. Kuldeep Kumar, Controller of Exams — Convener

The Committee is requested to kindly take a decision at the earliest so that the recommendations can be taken up in the next Senate meeting.

Dean (Academic)

All members

Copy to:

1. PS to Director for the kind information of the Director
2. PA to Registrar

CONFIDENTIAL

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA

No. Exams/08/ 412

Dated: 27.02.2008
28

Sub: Block system for B.Tech. Students.

This has reference to letter no Dean(Acad.)/senate 11th/2008 dated 13.02.2008

A committee consisting of the following members held several meetings and discussed the issue in detail:

1	Dr. T.K. Garg, Professor, MED	Chairman
2	Dr. Brahmjit Singh, Chairman, EC & CE	Member
3	Dr. Kuldeep Kumar, Controller of Exams	Convener

The recommendations of the committee are enclosed herewith.

(Dr. T.K. Garg) 28/2/08
Chairman

DA: As above

Dean (Acad.) 03.04.2008

NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA

No. Comm./block/2008 Dated: 27.02.2008

Reference: No. Dean (Acad.) Senate 11th/2008; Dated: 13.02.2008
Regarding abolishment of block system and to introduce re-evaluation of answer scripts for B.Tech. Programme

The existing block system as stipulated under clause 3.2 of academic regulation for UG and PG programmes, National Institute of Technology, Kurukshetra. The relevant portion of the clause reads as follows:

A student who earns an E grade in a course shall have to re-appear in that course in the subsequent examinations, subject to the following

Provided that a candidate shall not be allowed to attend the classes and appear in it. The semester examinations) mentioned in column (a), unless he/she has passed in the examination in the Semester Examination mentioned in column (b).

(a)	(b)
3rd Semester onwards	1st Semester
5th Semester onwards	2nd Semester
7th Semester onwards	3rd Semester
8th Semester onwards	4th Semester

The matter was discussed at length. The problems faced by the students and the examination sections as well were also deliberated upon in detail. The existing rule puts a block to the movement of the student to higher semester. Looking into the mental agony experienced by the students, the committee recommends the following guidelines:

1. The block system as mentioned above may be abolished for all batches covered under the rule. The number of extra chances will be restricted to that available within the maximum period of eight years. The candidate will be allowed to appear in the odd semester examination for odd semester course(s) and even semester examination for even semester course(s).

   (i) The additional internal improvement chance will be restricted to one only in the immediate next relevant semester.

   (ii) In case the student does not pass the internal component of examination, he/she has to repeat that course of study.

2. The existing transparency system of showing the answer scripts to the students be abolished.

The re-evaluation process will be carried out as mentioned below

(i) The candidate will submit the request for re-evaluation of answer scripts on the prescribed application form accompanied by the original DMC along with re-evaluation fee of Rs. 1000/-per subject within 20 days of the date of publication of the result or within 15 days of the date of dispatch of DMC by the Institute, whichever is later

(ii) Re-evaluation shall be got done by the faculty drawn from the Institutes of repute like IITs/ NITs/ DCE, Delhi / PEC Chandigarh/NSIT Delhi/TIT, Patiala

(iii) If the increase of marks after re-evaluation is more than 10% of the maximum marks of the paper, the answer script will be sent to the second re-evaluator. Average of the two higher awards given by the re-evaluators/examiners will be taken into consideration for final result declaration. Fractional marks, if any, shall be rounded off.

(iv) After completion of their studies for whole duration of the course up to VIII semester, the candidate will be eligible to appear in examination(s) as an ex-student for all the left over papers.

(Dr. Brahmjit Singh)

(Dr. Kuldeep Kumar)

(Dr. T.K. Garg)

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./2008/SCSA 15th mtg./ Dated: 07.03.2008

Minutes of the 15th SCSA meeting held on 04.03.2008 at 05.30 PM in the Board Room of the Institute

The following members were present during the meeting:

1. Dr. M.N. Bandyopadhyay, Director
2. Mr. RPS Lonchab, Registrar
3. Prof. R.K. Bansal, Dean (Academic)
4. Dr. T.K. Garg, Professor, Mech. Engg. Deptt.
5. Dr. S.P. Jain, Dean (P&D)
6. Dr. V.K. Sehgal, Chairman, Civil Engg. Deptt.
7. Dr. S.K. Sharma, Dean (E, C & EM)
8. Dr. K.S. Kasana, Chairman, Mech. Engg. Deptt.
9. Dr. A Swarup, Chairman, Electrical Engg. Deptt.
10. Dr. S.K. Chakarvarti, Chairman, Physics Deptt.
11. Dr. D.V. Singh, Chairman, Maths. Deptt.
12. Dr. R.C. Bhattacharjee, Chairman, Deptt. of Business Administration
13. Dr. Kuldeep Kumar, Controller of Examination
14. Dr. B.J. Singh, Chairman, ECCE Deptt.
15. Dr. P.J. Philip, Chairman, Deptt. of Hum. & Social Sciences
16. Prof. R.S. Bhatia, Chairman, MCA
17. Dr. A.K. Singh, Chairman, Compute Engg. Deptt.
18. Dr. Baldev Setia, Professor I/C Academic Affairs

The following decisions were taken:

1. Regarding abolishment of block system and to introduce re-evaluation of answer scripts for B.Tech. Programme.

In pursuance of the minutes of the 11th meeting of the Senate vide item No. 11.7, the Director had constituted a Committee of the following to look into the matter:

1. Dr. T.K. Garg, Professor, MED — Chairman
2. Dr. Brahmjit Singh, Chairman, EC & CE — Member
3. Dr. Kuldeep Kumar, Controller of Exams — Convener

The Committee submitted its report.

(a) The recommendations of the Committee were discussed in details. It was queried from the Academic Section as to the number of students who were affected and how many subjects are involved. Quite lengthy and logical statements were given in favour of and against the item under consideration. However, sensing the urgency and difficulties faced by the students, the SCSA agreed to accept the recommendations of the Committee and decided to abolish the block system in B.Tech Degree Course with immediate effect. The decision of the SCSA will be taken in the next meeting of the Senate for approval.

(b) It was also decided that the re-evaluation process would be carried out as mentioned below with effect from the next examination to be held in May/June.

(i) The candidate will submit the request for re-evaluation of answer scripts on the prescribed application form accompanied by the original DMC along with re-evaluation fee of Rs.1000/- per subject within 20 days of the date of publication of the result or within 15 days of the date of despatch of DMC by the institute, whichever is later.

(ii) Re-evaluation shall be got done from the faculty drawn from the Institutes of repute like IITs/ NITs/ DCE, Delhi / PEC Chandigarh /NSIT Delhi/TU, Patiala.

(iii) If the increase in marks after re-evaluation is more than 10% of the maximum marks of the paper, the answer scripts will be sent to the second re-evaluator. Average of the two higher awards given by the re-evaluators/examiners will be taken into

consideration for final result declaration. Fractional marks, if any shall be rounded off.

(iv) After completion of their studies for full duration of the course up to VIII semester, the candidate will be eligible to appear in examination(s) as an ex-student for all the left over papers.

(vi) It was also decided that the re-evaluation will be paid @ Rs. 20/- per answersheet and a minimum of Rs. 200/-

(vii) It was also decided that the practice of showing all evaluated answersheets to students prior to submission of awards to the Examination Cell will be dispensed with henceforth.

The meeting ended with a vote of thanks to the Chair.

31.03.2008

(BALDEV SETIA)
Professor Incharge (Acad. Affairs & Senate)

Approved

(M. N. Gandyopadhyay)
Director

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./17th SCSA/2126- 72 Dated 27.5.2008

Minutes of the 17th SCSA meeting held on 5th May, 2008 at 3.30 PM in the Board Room of the Institute

The following were present :-

1.	Dr. M.N.Bandyopadhyay, Director	In Chair
2.	Mr. R.P.S.Lohchab, Registrar	Member-Secretary, Senate
3.	Prof. R.K.Bansal, Dean (Academic)	
4.	Dr. S.P.Jain, Dean (P&D)	
5.	Dr. V.K.Sehgal, Chairman, Civil Engg. Deptt.	
6.	Dr. S.K. Sharma, Dean(Estate, Const. & EM)	
7.	Dr. K.S.Kasana, Chairman, Mech. Engg. Deptt.	
8.	Dr. A. Swarup, Chairman, Elect Engg. Deptt.	
9.	Dr. C.K. Chakarvarti, Chairman, Physics Deptt	
10.	Dr. D.V.Singh, Chairman, Maths. Deptt.	
11.	Dr. R.C Bhattacharjee, Chairman, Business Administration Deptt.	
12.	Dr. Kuldeep Kumar, Controller of Exams.	
13.	Dr. Brahmjit Singh, Chairman, ECE Deptt.	
13.	Dr. P.J Phillip, Chairman, Hum. & Social Scs Deptt.	
14.	Dr. R.S Bhatia, Chairman, Computer Applications Deptt.	
15.	Dr. A.K.Singh, Chairman, Computer Engg. Deptt.	
16.	Dr. Baldev Setia, Professor Incharge, Acad Affairs & Senate	

The following decisions were taken:

1. To consider renaming of the M.Tech Courses of Mechanical Engg. Deptt. as proposed by the Department.

The SCSA considered renaming of the M.Tech Courses of Mechanical Engg. Deptt. as proposed by the Department. The Chairman, Mechanical Engg. Department apprised the members the need for renaming of the said courses. The matter was thoroughly discussed and finalized. The Committee approved the same.

2. To consider changes in the Schemes of M.Tech (Instrumentation) and M.Tech (Nano-Technology).

The SCSA considered changes in the Schemes of M.Tech (Instrumentation) and M. Tech (Nano-Technology) as proposed by the Physics Department. The changes had been necessitated following the request by Chairman, Mechanical Engg. Deptt. and accordingly the

courses which are taught by the faculty of Mechanical Engg. to M.Tech (Instrumentation and Nano Technology students) have been shifted. The Committee approved the proposal of the Physics Department to be effective from the academic session 2008-09.

2. To consider inclusion of Course No. HUT-311: Business Management in B.Tech 5th/7th Semester for the students of IT and IEM

The Course No. HUT-311: Business Management is taught by Department of Humanities & Social Sciences to all the students of B.Tech during the Third Year of courses of study. For the students of B.Tech IT & IEM entering the Third Year with effect from the academic session 2008-09, it was decided that this course would be taught during the 6th Semester. The Committee considered the matter following the request of Chairman, Humanities & Social Sciences Department and approved the same.

4. Any other item

Under any other item, the following items were permitted by the Chair for discussion.

(i) With effect from the next academic session, i.e. 2008-09, for a subject a minimum of 9N classes (9 times number of classes to be held in a week) must be engaged by the teacher in a semester.

(ii) All the B.Tech students will be allowed to appear in the Odd Semester examination for Odd Semesters and Even Semester for Even Semester courses, for improvement of internal assessment and end semester examinations with effect from the academic session 2008-09 except the students of B.Tech 8th Semester. The B.Tech 8th Semester students will be allowed to appear in both Odd and Even Semester examinations. This had been taken up in accordance with the recommendations of the Committee comprising of Dr. T.K. Garg, Dr. Brahmjit Singh and Dr. Kuldeep Kumar constituted for abolishing the Block System, the report of which had been considered during the 15th meeting of the Standing Committee on Senate Affairs held on 4.3.2008.

(iii) At present, the Examination Cell is preparing DMCs mentioning the SGPA as well as CGPA. It was decided that henceforth, in DMCs of 6th, 7th and 8th Semester, both SGPA as well as CGPA will be mentioned and in the DMCs of 1st to 5th Semesters, only SGPA will be mentioned. For those students who have courses in the lower semesters to be cleared, only SGPA will be mentioned and no CGPA will be computed.

(iv) The Dean (Academic) apprised the Committee of the offer of MHRD to conduct short-term courses in the Institute. A letter alongwith guidelines received from the AICTE in this regard has already been circulated to all the Departments of the Institute. The Chairmen of the Departments were requested to prepare their proposals as early as possible.

(v) Dr. A Swarup, Co-ordinator, TEQIP sought the opportunity to appise the members of the remarks made by Prof. A.N Jha, Auditor, TEQIP during his recent visit to the Institute. The salient points emerged from the feedback that the Auditor received from the students were:

(a) Students' Representation in decision making process
(b) Delay in declaration of results
(c) Relevance and updating of courses and syllabi of B.Tech subjects
(d) Faculty shortage
(e) Regarding transparency in evaluation system
(f) Examination reforms

(vi) The Chair asked the Chairmen of all the Departments to send estimates of the extra faculty and expenditure to be involved in terms of additional faculty and infrastructure to be created on account of 54% additional intake (due to OBC) as per AICTE norms.

The meeting ended with a vote of thanks to the Chair.

27.02.2008
(BALDEV SETIA)
Professor Incharge (Acad. Affairs & Senate)

Approved

(M.N Bandyopadhyay)
Director

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./19th SCSA/ 12 - 15 - 27 Dated 22.10.2008

Minutes of the 19th SCSA meeting held on 14th October, 2008 at 4.35 PM in the Board Room of the Institute

The following were present:-

1.	Dr. M.N.Bandyopadhyay, Director	In Chair
2.	Sh. R.P.S Lohchab, Registrar	Member-Secretary, Senate
3.	Prof. R.K.Bansal, Dean (Academic)	
4.	Dr. S.P Jain, Dean (P&D)	
6.	Dr. V.K.Sehgal, Chairman, Civil Engg. Deptt.	
7.	Dr. S.K Sharma, Dean (Estate, Const & Elect. Mtc.)	
7.	Dr. K.S.Kasana, Chairman, Mech. Engg. Deptt.	
8.	Dr. Brahmjit Singh, Chairman, ECE Deptt.	
10.	Dr. K.S Sandhu, Officiating Chairman, Elect. Engg. Deptt.	
10.	Dr. R.K Deswal, Controller of Exams.	
11.	Dr. P.J Philip, Chairman, Hum. & Social Scs Deptt.	
13.	Dr. R.S Bhatia, Chairman, Computer Applications Deptt.	
14.	Dr. A.K Singh, Chairman, Computer Engg. Deptt.	
15.	Dr. D.P Singh, Chairman, Chemistry Department	
16.	Dr. Baldev Setia, Professor Incharge, Acad.Affairs & Senate	

The following decisions were taken:

1. To review the practice of allowing re-evaluation of answer scripts to the students

As a prelude to the item, Professor I/C (Academic Affairs and Senate) apprised the members of the background for having to review the system of allowing re-evaluation of answer scripts of the students. Apart from the request put forth by a large number of students, similar observation to this effect had earlier been made by Prof. A.N Jha, Auditor, TEQIP during his last visit to the Institute. The item was discussed at length and finally it was decided to revert to the system of showing answer scripts to the students to be effective for the Nov.-Dec 2008 examination onwards.

2. Any other item

On September 25th, 2008, 12 student representatives, 2 from B.Tech second year, 4 from third year and 6 from the final year had had a meeting with Dean (Academic), Professor I/C (Academic Affairs & Senate), Chief Warden and DR(Academic). They had put forth some requests/problems and the same were read out before the SCSA by Professor I/C (Academic Affairs & Senate). On request, the Chair permitted discussion on the decision adopted earlier that "All the B.Tech students will be allowed to appear in the Odd Semester examination for Odd Semesters and Even Semester for Even Semester courses, for improvement of internal assessment and end semester examinations with effect from the academic

session 2008-09 except the students of B.Tech 8th Semester. The B.Tech 8th Semester students will be allowed to appear in both Odd and Even Semester examinations." This had been taken up in accordance with the recommendations of the Committee comprising of Dr. T.K. Garg, Dr. Brahmjit Singh and Dr. Kuldeep [illegible] constituted for analyzing the Block System, the report of which had been considered during the 10th meeting of the Standing Committee on Senate Affairs held on 4.2.2008.")

The matter was deliberated upon and decided that the students should be allowed to appear in supplementary examinations in Odd Semester for Odd Semester courses and in Even Semester for Even Semester courses.

Also it was decided that in order to involve students in the decision making process of administration, a system of students' representatives by nomination may be formed. While discussing the modalities, it was agreed upon that the Chairpersons of 7 Engineering Departments would nominate 3 students, one each from second, third and final year and 4 more students from first year would be nominated by the Dean (Academic). The team of 25 students would bring forward the requests/problems of the students to the authorities in scheduled/arranged meetings.

The meeting ended with a vote of thanks to the Chair.

(BALDEV SETIA)
Professor I/C (Acad. Affairs) & Senate

Approved
[illegible]
Director & Chairman, Senate

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./20th SCSA/ Dated: 04.11.2008

Minutes of the 20th SCSA meeting held on 31st October, 2008 at 4.35 PM in the Board Room of the Institute

The following were present:-

1.	Dr. M.N. Bandyopadhyay, Director	In Chair
2.	Prof. R.K. Bansal, Dean (Academic)	
3.	Dr. T.K. Garg, Prof. MED	
4.	Dr. S.P Jain, Dean (P&D)	
5.	Dr. V.K. Sehgal, Chairman, Civil Engg. Deptt.	
6.	Dr. S.K Sharma, Dean (Estate, Const & Elect. Mtc.)	
7.	Dr. A. Swarup, Chairman, Elect. Engg. Deptt.	
8.	Dr. S.K. Chakarvarti, Chairman Physics. Deptt.	
9.	Dr. Kuldeep Kumar, Chairman, Mathematics. Deptt.	
10.	Dr. Brahmjit Singh, Chairman, ECE Deptt.	
11.	Dr. R.K Deswal, Controller of Exams.	
12.	Dr. P.J Philip, Chairman, Hum. & Social Scs Deptt.	
13.	Dr. S.S. Rattan, Officiating, Chairman, Mech. Engg.Deptt.	
14.	Dr. R.S Bhatia, Chairman, Computer Applications Deptt	
15.	Dr. A.K Singh, Chairman, Computer Engg. Deptt.	
16.	Dr. D.P Singh, Chairman, Chemistry Department	
17.	Dr. Baldev Setia, Professor Incharge, Acad.Affairs & Senate	

The following decisions were taken:

1. **To apprise the members of the salient points of the meeting of Dean (Academic) and others with the students and to consider the case of conducting odd and even semester exams together.**

At the outset, Dr. Baldev Setia, Professor I/C (Academic Affairs & Senate) apprised the SCSA members of the salient points of the meeting of the Dean (Academic) and others with the students held on 15.10.2008. The item under consideration was deliberated upon in light of the above-mentioned meeting and the written representation on behalf of the students. It was decided that as a one time measure, the B.Tech. students may be allowed to appear both for odd and even semester exams together during the exams to be held in December, 2008 only.

During the meeting mentioned above, the students had submitted a draft constitution of student representatives which was placed before the members. It was decided to put this document for consumption of all i.e. faculty, students

and administration through notice boards and website. Suggestions/modifications in the constitution of students representatives may be invited in writing (including e-mail). If required, a meeting may be held with the students. This will help in arriving at a consensus for constitution of student representative body.

2. **To consider the request of the B. Tech students (old) for granting mercy chance for appearing in their remaining papers**

The request of two B.Tech. students (old) namely Sh. Hemant Tamrian, Roll No.2K-112 and Sh. Suraj Gupt, Roll No. 2K-120 for granting mercy chance for appearing in their remaining papers was rejected by the SCSA.

3. **Any other item with the permission of the Chair**

Written request from about 30 B.Tech. (First year) students who had been admitted late for arranging extra classes was put before the SCSA for consideration.

The matter was discussed and it was decided that the Chairmen of various departments would arrange for extra classes for **one week** for the students who had been admitted late after the first regular counseling (i.e. during the second and third counselling) w.e.f. 15.11.2008. The first year students who have appeared in only one test because of late admission are to be allowed to appear in one more test at a suitable date to be decided by concerned teacher.

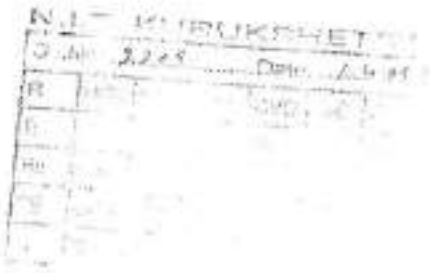
In view of this arrangement, the end semester examinations scheduled to start from 24.11.2008 shall stand postponed by one week.

The meeting ended with a vote of thanks to the Chair.

(BALDEV SETIA)
Professor I/C (Acad. Affairs & Senate)

Director

Dt. 01-04-2009



To

The Director,
N.I.T., Kurukshetra

Sir,

With due respect I am to state that the Physical Education Wing of the Institute may be declared as Department of Physical Education. In this connection following points are submitted for favour of consideration please:-

1. That the Board of Governors in its meeting held on 29.6.1990 considered and approved the Physical Education Department. (copy of the Office Order dated 25.1.1991 is enclosed).
2. That at NIT Warangal and NIT, Calicut there is already the Department of Physical Education. (Copies of downloaded documents from their websites are enclosed).
3. That our Physical Education Department is already offering one credit course each in 1st and 2nd Semester of B.Tech. for the last three years and BOS of the same also exists in the Institute and the both the staff (Prof. R.K. Sharma and Prof. Zile Singh) are member of the said BOS.
4. All the infrastructure and facilities are exists/available which are required for smooth running of the Department.

It is also worth mentioning here that there is no financial liability as well as further staff requirement in declaring the Physical Education as Department.

It is, therefore, requested that the Physical Education wing of the Institute may be declared as Department on the line of other Departments of the Institute.

Thanking you,

Yours faithfully,

(R.K. Sharma)
Director of Sports

REGIONAL ENGINEERING COLLEGE
KURUKSHETRA-132119.

No. GA-I/ 1245 Dated : 25.1.1991

OFFICE ORDER

Subject : Re-designation.

Consequent upon the decision of the Board of Governor in their meeting held on 29.6.1990, the following orders are issued which will take effect from 29.6.1990 :-

(1) Shri RK Sharma, Physical Training Officer has been re-designated as Director of Sports in the pay scale of Rs. 2200-75-2800-100-4000 without any change in the nature of duties performed by him. He will continue to be the Incharge of the Physical Education Department and all other in this Deptt. will continue to work under him.

(2) Sh. Zile Singh, DPE has been re-designated as Lecturer in Physical Education in the pay scale of Rs. 2200-75-2800-100-4000 without any change in the nature of duties being performed.

(3) Orders in respect of Sh. Shiv Charan will be issued separately. His case is being examined.

25/1/91
DEPUTY REGISTRAR(GA)
for Principal

Copy to :-

1. Dr. PDS Verma, Professor, Maths Deptt.
2. All Deans.
3. All Chairmen of Departments.
4. Dr. SC Srivastava, President, Sports.
5. Proctor.
6. Chief Warden .
7. All Wardens.
8. Finance Officer/Registrar.
9. Deputy Registrar(Accounts)
10. Deputy Registrar(Academic).
11. Deputy Registrar(GA).
12. XEN/Estate Officer.
13. Librarian.
14. Sr. Medical Officer.
15. Stores Officer.
16. DS to 'P' for information of the Principal.
17. Security Officer.
18. Concerned Persons.

NATIONAL INSTITUTE OF TECHNOLOGY, WARANGAL

Departments

- Department of Civil Engineering
- Department of Electrical Engineering
- Department of Mechanical Engineering
- Department of Electronics & Communication Engineering
- Department of Chemical Engineering
- Department of Metallurgical & Materials Engineering
- Department of Computer Science & Engineering
- Department of BioTechnology
- School of Management
- Department of Chemistry
- Department of Physics
- Department of Mathematics & Humanities
- Department of Physical Education

Department of Physical Education

The Department of Physical Education provides training facilities for all the students and staff of this Institute. It has excellent infrastructure facilities for both outdoor and indoor games. The outdoor games include Volley Ball, Foot Ball, Cricket, Tennis, Ball Badminton, Kabaddi, Kho-Kho, Hand Ball, Hockey, Tennikoit, Basket Ball (concrete) and Lawn Tennis. Flood Light facility is provided to all the outdoor games. The sports ground accommodates a 400m standard track, an excellent pavilion and facilities for all athletic events.

The Indoor Games Complex (IGC) provides the following facilities:

chess, Carums, Gymnastics, Shuttle badminton with wooden flooring, Table Tennis, Weight Lifting and 16 & 12 stations multi- Gyms.

Activities of the department include

- Organizing intramural and extramural competitions and preparing the students for the same.
- Encouraging student participation in inter-collegiate, Inter University and other open tournaments in the country.
- Organizing Inter-Collegiate tournaments, Inter University coaching camps and open tournaments in various sports and games.
- Organizing tournaments for Teaching and Non-Teaching staff.

Physical Directors

- R. Dayanithi, Ph.D.
- P. Madhusudhan Reddy, Ph.D.
- **P. Ravi Kumar, Ph.D. - Head**

Back to Departments

National Institute of Technology Calicut
राष्ट्रीय प्रौद्योगिकी संस्थान कालिकट
NITC

Physical Education

People

The department of physical education had existed right from the inception of Calicut REC in 1962. The department had one teacher, Mr. K.M.K Ahamed with 2 markers to assist him. Mr. Ahamed tragically passed away due to illness while in service and other subject teachers were standing in temporarily till 2 regular Lecturers namely, M/S T.M. Abdurahiman and John Philip, took charge in 1971. Dr. A.N. Najeeb joined the department in October,1976 in place of John Philip who opted out of the institution for domestic reasons. Sri. Abdurahiman retired as Asst. Professor in July, 2002 and was replaced by Mr. Sunil M.S who joined as Lecturer in August 2005. The duo of Dr. Najeeb, Asst. professor and Mr. Sunil, Lecturer continues as on date. The two regular markers in the department M/S Shanku Francis and K.Ramadasan also retired from service during 1999 and 2005 respectively. They have not been replaced yet and the department is makeshifting with temporary hands. More...

Dt. 04-04-2007

N.I.T. KURUKSHETRA
2266 Date 2.4.07

To

The Director,
N.I.T., Kurukshetra

Sir,

With due respect I am to state that the Physical Education Wing of the Institute may be declared as Department of Physical Education. In this connection following points are submitted for favour of consideration please:-

1. That the Board of Governors in its meeting held on 29.6.1990 considered and approved the Physical Education Department. (copy of the Office Order dated 25.1.1991 is enclosed).
2. That at NIT Warangal and NIT, Calicut there is already the Department of Physical Education. (Copies of downloaded documents from their websites are enclosed).
3. That our Physical Education Department is already offering one credit course each in 1st and 2nd Semester of B.Tech. for the last three years and BOS of the same also exists in the Institute and the both the staff (Prof. R.K. Sharma and Prof. Zile Singh) are member of the said BOS.
4. All the infrastructure and facilities are exists/available which are required for smooth running of the Department.

It is also worth mentioning here that there is no financial liability as well as further staff requirement in declaring the Physical Education as Department.

It is, therefore, requested that the Physical Education wing of the Institute may be declared as Department on the line of other Departments of the Institute.

Thanking you,

Yours faithfully,

(Zile Singh)
Lecturer
Physical Education

R/ Dr (Acad)

Prof. i/c (Acad + Senate)

DC (Acad)

REGIONAL ENGINEERING COLLEGE
KURUKSHETRA-132119.

No. GA-I/ 1245 Dated : 25.1.1991

OFFICE ORDER

Subject : Re-designation.

Consequent upon the decision of the Board of Governors in their meeting held on 29.6.1990, the following orders are issued which will take effect from 29.6.1990 :-

(1) Shri BK Sharma, Physical Training Officer has been re-designated as Director of Sports in the pay scale of Rs. 2200-75-2800-100-4000 without any change in the nature of duties performed by him. He will continue to be the Incharge of the Physical Education Department and all other in this Deptt. will continue to work under him.

(2) Sh. Zile Singh, DPE has been re-designated as Lecturer in Physical Education in the pay scale of Rs. 2200-75-2800-100-4000 without any change in the nature of duties being performed.

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DEPUTY REGISTRAR(GA)
for Principal

Copy to :-

1. Dr. PDS Verma, Professor, Maths Deptt.
2. All Deans.
3. All Chairmen of Departments.
4. Dr. SC Srivastava, President, Sports.
5. Proctor.
6. Chief Warden .
7. All Wardens.
8. Finance Officer/Registrar.
9. Deputy Registrar(Accounts)
10. Deputy Registrar(Academic).
11. Deputy Registrar(GA).
12. XEN/Estate Officer.
13. Librarian.
14. Sr. Medical Officer.
15. Stores Officer.
16. DS to 'P' for information of the Principal.
17. Security Officer.
18. Concerned Persons.

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aff Associations »
vities »

Departments

Department of Civil Engineering

Department of Electrical Engineering

Department of Mechanical Engineering

Department of Electonics & Communication Engineering

Department of Chemical Engineering

Department of Metallurgical & Materials Engineering

Department of Computer Science & Engineering

Department of BioTechnology

School of Management

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Department of Physics

Department of Mathematics & Humanities

→ Department of Physical Education

Quick Links

- Rules and Regulations
- Fee Structure
- Academic Calendar
- TEQIP
- Central Library
- Training and Placement
- Alumni Association

tact Us | Information Act | Disclaimer |

48

NATIONAL INSTITUTE OF TECHNOLOGY, WARANGAL

Department of Physical Education

The Department of Physical Education provides training facilities for all the students and staff of this Institute. It has excellent infrastructure facilities for both outdoor and indoor games. The outdoor games include Volley Ball, Foot Ball, Cricket, Tennis, Ball Badminton, Kabaddi, Kho-Kho, Hand Ball, Hockey, Tennikoit, Basket Ball (concrete) and Lawn Tennis. Flood Light fecility is provided to all the outdoor games. The sports ground accommodates a 400m standard track, an excellent pavilion and facilities for all athletic events.

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Activities of the department include

- Organizing intramural and extramural competitions and preparing the students for the same.
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- Organizing Inter-Collegiate tournaments, Inter University coaching camps and open tournaments in various sports and games.
- Organizing tournaments for Teaching and Non-Teaching staff.

Physical Directors

- R. Dayanithi, Ph.D.
- P. Madhusudhan Reddy, Ph.D.
- **P. Ravi Kumar, Ph.D. - Head**

Back to Departments

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Wed Feb 13 12:06:56 IST 2008

The department of physical education had existed right from the inception of Calicut REC in 1963. The department had one teacher, Mr. K M K Ahamed with 2 markers to assist him. Mr. Ahamed tragically passed away due to illness while in service and other subject teachers were standing in temporarily till 2 regular Lecturers namely, M/S T M. Abdurahiman and John Philip, took charge in 1971. Dr. A.M. Najeeb joined the department in October,1976 in place of John Philip who opted out of the institution for domestic reasons. Sri. Abdurahiman retired as Asst. Professor in July, 2002 and was replaced by Mr. Sunil M.S who joined as Lecturer in August 2005. The duo of Dr. Najeeb, Asst. professor and Mr. Sunil, Lecturer continues as on date. The two regular markers in the department M/S Shanku Francis and K.Ramadasan also retired from service during 1999 and 2005 respectively. They have not been replaced yet and the department is makeshifting with temporary hands. More...

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA- 136 119

No. Dean(Acad)/2008/ Dated: 23.3.2009

A meeting of the following was held on 23.3.2009 at 4.00 P.M in the office of the Dean (Academic) to decide the case of Mr. Tushar Goyal, Roll No. 1263/06.

1. Prof. R.K Bansal, Dean (Academic) Chairman
2. Dr. Brahmjit Singh, Chairman, ECE Member
3. Dr. Rajender Kumar, COE Member

The following decisions were taken:-

1. The decision taken by the Committee constituted by the Chairman, ECE Department for awarding the marks on pro-rata basis in respect of Sh. Tushar Goyal, Roll No. 1263/06 in the subject of Microelectronics (ECT-309) for B.Tech 5th Semester (Ec) exam. held in Nov./Dec., 2008 may be approved.

2. The Chairman of the ECE Department may be authorized to call the explanation of the concerned teacher and suitable action may be taken by the authority.

The meeting ended with a vote of thanks to the Chair.

(RAJENDER KUMAR) (BRAHMJIT SINGH) (R.K BANSAL)

DIRECTOR

DS (Acad) for SCSA file

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./2009/SCSA/23rd mtg/12538 Dated: 11.05.2009

Minutes of the 23rd SCSA meeting held on 08.05.2009 at 4.00 pm in the Senate Hall of the Institute

The following were present:

1. Dr. M N Bandyopadhyay, Director — In Chair
2. Dr. Krishna Gopal, Dean (P&D)
3. Prof. R K Bansal, Dean (Academic)
4. Dr. T K Garg, Professor, Mech. Engg. Deptt.
5. Dr. S P Jain, Dean (Student Welfare and T&P)
6. Dr. K B Singh, Acting Chairman, Hum. & Social Sc. Deptt.
7. Dr. S S Rattan, Acting Chairman, Mech. Engg. Deptt.
8. Dr. K S Sandhu, Acting Chairman, Electrical Engg. Deptt.
9. Dr. Baldev Setia, Chairman, Civil Engg. Deptt.
10. Dr. Rajender Kumar, Controller of Examinations
11. Dr. S K Mahna, Chairman, Physics Deptt.
12. Dr. R.S Bhatia, Chairman, Computer Applications Deptt.
13. Dr. R K Sharma, Chairman, Elect. & Comm. Engg. Deptt.
14. Dr. D P Singh, Chairman, Chemistry Deptt.
15. Dr. Ashwani Jain, Prof. Incharge (Academic Affairs & Senate)
16. Dr. A K Singh, Chairman, Computer Engg. Deptt.
17. Sh. R P S Lohchab, Registrar — Secretary, SCSA

The following decisions were taken:

Item No.1: To consider and approve recommendations of the Committee for granting mercy chance to old B.Tech. students for appearing in their remaining papers

As per decision taken by the Senate in its 12th meeting held on 15.1.2009 under Item No. 12.17, a Committee was constituted by the Director for considering the request of old B.Tech. students for granting mercy chance for appearing in their remaining papers. The recommendations of the committee are as follows:

The candidate may be considered for grant of only one mercy chance after completion of upper limit of 8 year period as provided in the B.Tech. Ordinances prevailing upto 2002 under Kurukshetra University System provided the candidate fulfills the following conditions:

i. The candidate did not avail at least one chance between 5th to 8th year of registration for genuine reasons to the satisfaction of the Director.

ii. That the maximum no. of backlog papers remaining is not more than the no. of theory papers in 8th semester i.e. 5 subjects and there is no backlog of practicals, projects, seminars, sessionals etc.

iii. The mercy chance would be available only in the 9th year of registration and not after that.

iv. The examination fee to be charged shall be Rs. 2,500/- per subject, subject to a minimum of Rs. 5,000/-

v. The candidate will have to submit all his/her original mark sheets and certificates personally to the Controller of Examination along with the application to verify the backlog remaining for the candidate.

vi. This practice may be continued upto Academic year 2010-11, the 9th year for the batch admitted in 2002 i.e. the last batch admitted under Kurukshetra University System.

vii. After Academic year 2010-11, when a candidate from NIT System in 9th year of the registration would be available, the practice of grant of mercy chance under any circumstances may be discontinued.

The recommendations of the committee were considered and approved.

Further it was decided that the recommendations will be effective from the Semester Examinations to be held in May/June 2009. However, since the time for implementation is short, as a special case, the students of 2000 batch who are unable to appear in Semester Examinations to be held in May/June 2009 be allowed to appear in Semester Examinations scheduled for Nov./Dec. 2009.

Item No. 2: **To consider and approve Academic Calendar of the session 2009-2010**

The draft of the Academic Calendar of the Session 2009-2010 was discussed and analyzed. Certain suggestions were made and Prof. Incharge (Academic Affairs and Senate) was asked to incorporate the suggested changes and modify the draft. The modified Academic Calendar for the Session 2009-2010 is enclosed as Appendix-A.

Item No.3: **To consider and approve modified scheme and syllabi of B.Tech. IEM 7th & 8th Semester as per decision taken in the 12th meeting of the Senate**

The SCSA considered and approved the modified Scheme and Syllabi of B.Tech. IEM 7th & 8th Semesters as per details furnished in the agenda item.

Item No.4: **To consider and approve modified scheme of B.Tech. 5th & 6th Semester Information Technology as per decision of 12th meeting of Senate along with scheme and syllabi of B.Tech. 7th and 8th Semesters Information Technology**

The modified Scheme of B.Tech. 5th and 6th Semesters Information Technology as also the Scheme and Syllabi of B.Tech. 7th and 8th Semesters Information Technology as per details given in the agenda item were considered and approved.

Item No.5: **To consider and approve minor changes in the Scheme and Syllabi of some courses in B.Tech. Computer Engg.**

The SCSA considered and approved the changes proposed in the Scheme of B.Tech. 5th & 6th Semester Computer Engg. and syllabi of some courses of B.Tech. Computer Engg.

Item No.6: To consider and approve inclusion of list of open electives in the scheme of B. Tech. 7th Semester Industrial Engineering & Management and Information Technology from the academic session 2009-2010.

The SCSA considered and approved the inclusion of the list of Open Elective-I in the Scheme of B.Tech. 7th Semester for the students of IEM and IT branches.

The meeting ended with a vote of thanks to the Chair.

12/5/2009

(R P S Lohchab)
Registrar & Secretary, SCSA

Approved

(M N Bandyopadhyay)
Director

Appendix-A

ACADEMIC CALENDAR (SESSION 2009 – 2010)

ODD SEMESTER

1.	Registration	17 to 29 July 2009 (Friday to Sunday)
2.	Teaching Commences	20.7.2009 (Monday)
3.	Last Date for late registration with late fee of Rs. 250/- with the permission of Director/ Dean (Academic)	27.7.2009 (Monday)
4.	Mid-Semester Exam.-I	27.08.2009 (Thursday) to 29.08.2009 (Saturday)
5.	Mid Semester Vacation	02.10.2009 (Friday) to 9.10.2009 (Friday)
6.	Mid-Semester Exam-II	19.10.2009 (Monday) to 21.10.2009(Wednesday)
7.	Mid-Semester Exam.-III	May be arranged by the teachers as per their convenience
8.	Teaching closes	06.11.2009 (Friday)
9.	End Semester Exams. begin	16.11.2009 (Monday)
10.	Winter Vacation	30.11.2009 (Monday) to 11.12.2009 (Friday)
11.	Declaration of Result	By the end of December 2009

EVEN SEMESTER

1.	Registration	17.12.2009 to 19.12.2009 (Thursday to Saturday)
2.	Teaching Commencés	21.12.2009 (Monday)
3.	Last Date for late registration with late fee of Rs. 250/- with the permission of Director/ Dean (Academic)	28.12.2009 (Tuesday)
4.	Convocation	First Fortnight of January 2010
5.	Mid-Semester Exam.-I	04.02.2010 (Thursday) to 06.02.2010 (Saturday)
6.	Athletic Meet	12.02.2010 (Friday) to 14.02.2010 (Sunday)
7.	Confluence-2010	05.03.2010 (Friday) to 07.03.2010 (Sunday)
8.	Mid Semester Vacation	08.03.2010 (Monday) to 12.03.2010 (Friday)
9.	Mid-Semester Exam-II	22.03.2010 (Monday) to 24.03.2010 (Wednesday)
10.	Literati-2010	16.04.2010 (Friday) to 18.04.2010 (Sunday)
11.	Mid-Semester Exam.-III	May be arranged by the teachers as per their convenience
12.	Teaching closes	30.04.2010 (Friday)
13.	End Semester Exams. begin	10.05.2010 (Monday)
14.	Summer Vacation	24.5.2010 (Monday) to 05.07.2010 (Friday)
15.	Practical Training begins	01.06.2010 (Monday)
16.	Declaration of Result	By the end of June 2010

Item No.1: **To consider and approve recommendations of the Committee for granting mercy chance to old B.Tech students for appearing in their remaining papers**

As per decision taken by the Senate in its 12[th] meeting held on 19.1.2009 under Item No. 12.17, a Committee of the following was constituted by the Director for considering the request of old B.Tech students for granting mercy chance for appearing in their remaining papers:

1. Dr. Krishna Gopal, Dean (P&D)	Chairman
2. Dr. Baldev Setia, Chairman, CED	Member
3. Dr. Rajender Kumar, COE	Member

The recommendations of the committee are enclosed as Appendix 1 from page 3 to 4.

The Standing Committee on Senate Affairs may kindly consider and approve the recommendations of the Committee.

Appendix-1

OFFICE OF THE DEAN(P&D)
NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119.

Dated : 20.4.2009.

Dean(P&D)/F.2.3

Please refer to letter no. Acad/ dated 17.3.2009, the recommendations of the Committee are enclosed herewith along with the data collected (8 pages).

(Krishan Gopal)
Dean(Plg. & Dev.) &
Chairman, Committee

Director

Encl : A/a

Recommendations of the Committee consisting of the following constituted by the Director vide office letter no. Acad/ dated 17.3.2009 to consider grant of mercy change to old B.Tech students

1. The Committee met several times and collected the data (Enclosed as Appendix - I 8 pages) regarding the backlog of the old students.

2. There are total 62 students from 1997 - 2K2 batches of B.Tech, however, the data supplied by the office is neither complete nor very reliable, as the authentic information upto 2003 is not available in the office.

3. The Committee examined the data in detail and discussed various issues involved and the implications of the same. After due deliberations and keeping in view the practice of granting mercy chance(s) by Vice Chancellor of Kurukshetra University, Kurukshetra, the Committee recommends the following:

   The candidate may be considered for grant of only one mercy chance after completion of upper limit of 8 year period as provided in the B.Tech Ordinances prevailing upto 2002 under Kurukshetra University system provided the candidate fulfills the following conditions:

   i) The candidate did not avail at least one chance between 5th to 8th year of registration for genuine reasons to the satisfaction of the Director.

   ii) That the maximum no. of backlog papers remaining is not more than the no. of theory papers in 8th semester i.e. 5 subjects and there is no backlog of practicals, projects, seminars, sessionals etc.

   iii) The mercy chance would be available only in the 9th year of registration and not after that.

   iv) The examination fee to be charged shall be Rs. 2,500/- per subject, subject to a minimum of Rs. 5,000/-.

   v) The candidate will have to submit all his/her original mark sheets and certificates personally to the Controller of Examination along with the application to verify the backlog remaining for the candidate.

   vi) This practice may be continued upto Academic year 2010-11, the 9th year for the batch admitted in 2002 i.e. the last batch admitted under Kurukshetra University system.

   vii) After Academic year 2010-11, when a candidate from NIT system in 9th year of the registration would be available, the practice of grant of mercy chance under any circumstances may be discontinued.

(Baldev Setia) (Rajender Kumar) (Krishna Gopal)

Item No. 2: To consider and approve Academic Calendar of the session 2009-2010

The draft Academic Calendar of the session 2009-2010 is enclosed as Appendix 2 on page 6.

The SCSA may kindly consider and approve the same.

ACADEMIC CALENDAR (SESSION 2009 - 2010)

ODD SEMESTER

1	[illegible]	17 to 19 July 2009 (Friday to Sunday)
2	[illegible]	20.7.2009 (Monday)
3	Last Date for late registration with late fee of Rs. 250/- with the permission of Director/ Dean (Academic)	27.7.2009 (Monday)
4	Mid Semester Exam-I	27.08.2009 (Thursday) to 29.08.2009 (Saturday)
5	Mid Semester Vacation	02.10.2009 (Friday) to 9.10.2009 (Friday)
6	Mid Semester Exam-II	22.10.2009 (Thursday) to 24.10.2009 (Saturday)
7	Mid Semester Exam -III	May be arranged by the teachers as per their convenience
8	End of Teaching	13.11.2009 (Friday)
9	End Semester Exams. begin	23.11.2009 (Monday)
10	Winter Vacation	30.11.2009 (Monday) to 11.12.2009 (Friday)
11	Declaration of Result	By the end of December 2009

EVEN SEMESTER

1	Registration	28.12.2009 to 30.12.2009 (Monday to Wednesday)
2	Classes Commence	31.12.2009 (Thursday)
3	Last Date for late registration with late fee of Rs. 250/- with the permission of Director/ Dean (Academic)	05.01.2010 (Tuesday)
4	Convocation	First Fortnight of January 2010
5	Mid-Semester Exam-I	04.02.2010 (Thursday) to 06.02.2010 (Saturday)
6	Athletic Meet	12.02.2010 (Friday) to 14.02.2010 (Sunday)
7	Confluence-2010	05.03.2010 (Friday) to 07.03.2010 (Sunday)
8	Mid Semester Vacation	08.03.2010 (Monday) to 12.03.2010 (Friday)
9	Mid-Semester Exam-II	25.03.2010 (Thursday) to 27.03.2010 (Saturday)
10	Literati-2010	16.04.2010 (Friday) to 18.04.2010 (Sunday)
11	Mid-Semester Exam -III	May be arranged by the teachers as per their convenience
12	End of Teaching	30.04.2010 (Friday)
13	End Semester Exams. begin	10.05.2010 (Monday)
14	Summer Vacation	24.5.2010 (Monday) to 09.07.2010 (Friday)
15	Practical Training Starts	01.06.2010 (Monday)
16	Declaration of Result	By the end of June 2010

Item No.3: **To consider and approve modified scheme and syllabi of B.Tech. IEM 7th & 8th Semester as per decision taken in the 12th meeting of the Senate**

An Item No. 12.15 to consider and approve modified scheme and syllabi of B.Tech. IEM 7th & 8th Semester was placed in the Senate in its 12th meeting held on 19.1.2009. The Senate considered and approved the modified scheme and syllabi of B.Tech IEM 7th and 8th semesters with some suggestions for modification. The Chairman, Mechanical Engg. Deptt. was requested to incorporate the changes and get the approval of the Chairman, Senate for its implementation next semester.

As per decision of the 12th meeting of the Senate, the Chairman, Mechanical Engg. Department has sent the modified Scheme & Syllabi (for courses where modifications were suggested) of B.Tech IEM 7th & 8th semester, duly approved by the members of the Board of Studies of the Mechanical Engg. Deptt. by circulation . The modified scheme and syllabi are enclosed as Appendix 3 from page 9 to 16.

The SCSA may kindly approve the modified scheme and syllabi.

DEPARTMENT OF MECHANICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA

No. MED/2009/ -3

Dated: 22.1.2009

With reference to discussion in the Senate meeting held on 19th January'2009 regarding the change in the scheme of IEM 7th & 8th Semester. The needful has been done. This is for your information and necessary action. Copy of the scheme & syllabi is enclosed herewith. The same has been passed by circulation through BOS.

Chairman

Encl: As above.

Dr. Ashwani Jain,
Prof.-I/C(Academic Affairs)

1. KSK
2. PKG
3. SKS
4. SSR
5. SS
6. DG
7. HS
8. GB
9. PC
10. VKB
11. PCT
12. AJ
13. SCG
14. VKM
15. Meenu

SCHEME OF EXAMINATION
B. TECH. (7th SEMESTER) INDUSTRIAL ENGINEERING AND MANAGEMENT

S. No.	Course No	Subjects	Teaching Schedule (Hours)				Credits	Duration of Exams. (Hours)
			L	T	P/D	Total		
1	IEM-401	Network and project management	3	1	-	4	3.5	3
2.	IEM-403	CAD/CAM	3	1	-	4	3.5	3
3.	IEM-405	Product Design & Development	3	1	-	4	3.5	3
4.	IEM-	Elective II *	3	1	-	4	3.5	3
5.		Open Elective I**	3	1	-	4	3.5	3
6.	IEM-407	CAD/CAM (Practical)	-	-	3	3	1.5	3
7.	IEM-409	PRIDE Lab	-	-	3	3	1.5	3
8.	IEM-411	Minor	-	-	4	4	6.0	3
9.	IEM-413	Practical Training Report	-	-	-	-	3.5	3
		Total	15	5	10	30	30.0	

* The Elective II will be offered from the list of Electives
**The Open Elective I will be offered from the list of Open Electives

Appendix-3

SCHEME OF EXAMINATION

B. TECH. (8th SEMESTER) INDUSTRIAL ENGINEERING AND MANAGEMENT

S. No.	Course No	Subjects	Teaching Schedule (Hours)				Credits	Duration of Exams. (Hours)
			L	T	P/D	Total		
1	IEM-402	Industrial inspection and non-destructive testing	3	1	-	4	3.5	3
2.	IEM -404	Maintenance and reliability engineering	3	1	-	4	3.5	3
3.	IEM -406	Experimental Design Techniques	3	1	-	4	3.5	3
4.	IEM -	Elective III*	3	1	-	4	3.5	3
5.		Open Elective II **	3	1	-	4	3.5	3
6	IEM -408	NDT Lab	-	-	2	2	1.0	3
7.	IEM -410	Optimization Lab	-	-	2	2	1.0	3
8.	IEM -412	Major Project	-	-	4	4	6.0	3
9.	IEM -414	Seminar-II	-	-	2	2	1.0	3
10	IEM -416	Comprehensive Viva-Voce	-	-	-	-	3.0	3
11	IEM-418	General Fitness and Professional Aptitude (Viva-Voce)	-	-	-	-	3.5	3
		Total	15	5	10	30	33.0	

* The Elective III will be offered from the list of Electives.

**The Open Electives II will be offered from the list of Open Electives.

SCHEME OF EXAMINATION
B. TECH. (7TH SEMESTER) INDUSTRIAL ENGINEERING AND MANAGEMENT

Sr. No.	Course No.	Subjects	Teaching Schedule (Hours)				Credits	Duration of Exam (Hours)
			L	T	P/D	Total		
1.	IEM-401	Network and Project management	3	1	-	4	3.5	3
2.	IEM-403	Computer Aided Design and Manufacturing	3	1	-	4	3.5	3
3.	IEM-405	Product Design & Development	3	1	-	4	3.5	3
4.	IEM-	Elective II*	3	1	-	4	3.5	3
5.	IEM-	Open Elective I**	3	1	-	4	3.5	3
6.	IEM-407	CAD / MS (Practical)	-	-	3	3	1.5	3
7.	IEM-409	PRIDE Lab	-	-	3	3	1.5	3
8.	IEM-411	Minor Project	-	-	9	9	4.5	3
9.	IEM-413	Practical Training Report	-	-	-	-	2.0	3
		Total	15	5	15	35	28.0	

*The Elective II will be offered from the list of Electives

** The Open Elective I will be offered from the list of Open Electives

SCHEME OF EXAMINATION

B. TECH. (8th SEMESTER) INDUSTRIAL ENGINEERING AND MANAGEMENT

Sr. No.	Course No.	Subjects	Teaching Schedule (Hours)				Credits	Duration of Exams (Hours)
			L	T	P/D	Total		
1.	IEM-402	Industrial Inspection and Non-destructive Testing	3	1	-	4	3.5	3
2.	IEM-404	Maintenance and Reliability Engineering	3	1	-	4	3.5	3
3.	IEM-406	Experimental Design Techniques	3	1	-	4	3.5	3
4.	IEM-	Elective III*	3	1	-	4	3.5	3
5.	IEM-	Open Elective II**	3	1	-	4	3.5	3
6.	IEM-408	NDT Lab	-	-	2	2	1.0	3
7.	IEM-410	Optimization Lab	-	-	2	2	1.0	3
8.	IEM-412	Major Project	-	-	8 4	8 4	6+4=10	3
9.	IEM-414	Seminar-II	-	-	2	2	1.0	3
10.	IEM-416	Comprehensive Viva-Voce	-	-	-	-	2.0	3
11.	IEM-418	General Fitness and Professional Aptitude (Viva-Voce)	-	-	-	-	2.5	3
	Total		15	5	15 10	35 20	36.0 34.0	

*The Elective III will be offered from the list of Electives.

** The Open Electives II will be offered from the list of Open Electives.

Suggested by Senate

B.TECH. (7th SEMESTER) INDUSTRIAL ENGINEERING AND MANAGEMENT

IEM-411 MINOR PROJECT

L	T	P/D	Cr
-	-	4	6

The student is expected to take up a project under the guidance of teacher from the college. The project must be based on the mechanical engineering problems, which will extend full academic session in two parts. The student may be asked to work individually or in-group with not more than four students. Viva-voce must be based on the preliminary report submitted by student(s) related to project.

B.TECH. (7th SEMESTER) INDUSTRIAL ENGINEERING AND MANAGEMENT

IEM-413 PRACTICAL TRAINING REPORT

L	T	P/D	Cr
-	-	-	3.5

Student will submit summer training (about 6 week's industrial training) report for his/her assessment.

This will be a subject of IEM as discussed with the chairperson of Physics by Dr Pankaj Chandna
30/1/09

B.TECH. (8th SEMESTER) INDUSTRIAL ENGINEERING AND MANAGEMENT

IEM-402 INDUSTRIAL INSPECTION AND NON-DESTRUCTIVE TESTING

L	T	P/D	Cr
3	1	-	3.5

Magnetic Particle Testing: Magnets and magnetic materials, Magnetization and its methods, Magnetic fields, Detection media. Application of magnetic particles testing, Testing equipments machines and accessories, Inspection and interpretation, Application in industry. **(6 hrs)**

Liquid Penetrant Testing: Principle of liquid penetrant testing, Methods, Their advantages and disadvantages, Equipment used, Penetrant materials, Testing procedures, Inspection and interpretation, Application in industry. **(6 hrs)**

Electromagnetic Methods: Eddy current theory, Magnetic flux leakage theory, Eddy current sensing probes, Flux leakage sensing probes, Principle of electromagnetic testing, Mathematical analysis, Flaw detection in conductors, Various types of eddy current techniques used and advantages of various electromagnetic methods for crack detection etc. **(8 hrs)**

Radiography: Principle of radiography, Types of radiography, Equipments for neutron radiography, X-ray radiography, Equipments for X-ray radiography, Advantages and applications of fluoroscopy and photo fluoroscopy. **(6 hrs)**

Ultrasonic Methods: Physical principle of sound, Ultrasonic waves propagation and their characteristics, Generation of ultrasonic waves, Ultrasonic transducers, Ultrasonic testing equipment, Ultrasonic flaw detector, Fundamental of ultrasonic testing, Contract and immersion testing, Merits and demerits, Defect location in angle beam testing, Immersion testing techniques, Ultrasonic signal display, Detection of defects and their characterization, DGS methods, Time of flight diffraction method (TOFD). **(10 hrs)**

Hardness Testing: Brinell hardness testing, Rockwell hardness tests, Micro hardness testing, Vicker hardness testing and theory behind various hardness testing methods. **(4 hrs)**

Books Recommended

1. Malhotra, "*Handbook on Non-destructive Testing of Concrete*", Publisher: CRC Press, 2002.
2. Mix, Paul E, "*Introduction to Nondestructive Testing: A Training Guide*", John Wiley and Sons Ltd, 1999.
3. Blitz and Jack, "*Electrical and Magnetic Methods of Nondestructive Testing*", Institute of Physics Publishing, 2001.
4. Henrique L M, "*Non Destructive Testing and Evaluation for Manufacturing and Construction*", Hemisphere Publishers, New York, 2001.

B.TECH. (8th SEMESTER) INDUSTRIAL ENGINEERING AND MANAGEMENT

IEM-412 MAJOR PROJECT

L	T	P/D	Cr
-	-	4	6.0

The student is expected to finish the remaining portion of the project.

Item No.4: **To consider and approve modified scheme of B.Tech 5th & 6th Semester Information Technology as per decision of 12th meeting of Senate along with scheme and syllabi of B.Tech 7th and 8th Semesters Information Technology**

An item No.12.5 for ratification the action taken by the Chairman, Senate in approving the Scheme and Syllabi of B.Tech. 5th & 6th Semester Information Technology was placed before the Senate in its 12th meeting held on 19.1.2009. The Senate took the following decision:

"It was brought to the notice of the Senate that the number of contact hours for 5th and 6th Semesters were fixed as 32 per week and 31 per week respectively. As per the existing practice, the contact hours should have been 35 per week for each Semester. On the request of Chairman, Computer Engg, the Senate allowed the proposed scheme to be operative for the current semester. However, for the next session, i.e,. 2009-10, it was decided that a Committee constituted by the Chairman Senate will look into the matter and recommendations of the same be implemented after due approval."

In accordance with the above decision of the 12th Senate meeting, the following Committee was constituted:

1. Dr. A.K Singh, Chairman, Computer Engg. Deptt. — Chairman
2. Dr. Mayank Dave, Asstt. Professor, Compuer Engg. Deptt. — Member
3. Ms Priyanka Ahlawat, Lecturer in Information Technology — Member

The Committee proposed modifications in the scheme of B.Tech 5th & 6th semesters Information Technology. These modifications have also been approved by the Board of Studies of Computer Engg. Department in its meeting held on 28.4.2009 which are placed as Appendix 4.1 from page 20 to 47.

In addition to above, the Chairman, Computer Engg. Department has also enclosed the Scheme and Syllabi of B.Tech Information Technology 7th and 8th semesters alongwith minutes of the BOS meeting held on 28.4.2009 for consideration and approval. The scheme and syllabi of B.Tech. Information

Technology 7th & 8th semesters are enclosed as Appendix 4.2 from page 48 to 69.

The SCSA may kindly consider and approve the modifications in the Scheme of B.Tech 5th and 6th Semesters Information Technology alongwith the scheme and syllabi of B.Tech 7th and 8th Semesters Information Technology.

Department of Computer Engineering
National Institute of Technology Kurukshetra - 136119

NO/CO/2009/ Date. 28.04.09

Sub:-Minutes of BOS meeting.

A meeting of Board of Studies was held in the office of the undersigned on 28.04.2009 at 10:30am. Following were present

1. Dr A K Singh (In Chair)
2. Dr Mayank Dave (Member)
3. Dr S K Jain (Member)
4. Prof R M Sharma (Member)
5. Prof R K Aggarwal (Member)

Following items were considered and approved.

1. Appointment of examiner for even semester examination.
2. The modifications, proposed by the committee constituted by Dean Academic, in the scheme of B.Tech (IT), in view of the observation of Senate.
3. Minor changes in the scheme and syllabus of some courses in B.Tech (Computer Engg).
4. The recommendations of DRC, regarding PhD deregistration of Mr Neeraj Garg, registration no.2006-NITK-1004 (Comp) – 08/05/2006, were considered and approved.

28/4/2009

CHAIRMAN

1. Dr Mayank Dave
2. Dr S K Jain
3. Prof R M Sharma
4. Prof R K Aggarwal 28/4/09

SCHEME & SYLLABUS FOR PROGRAM B.TECH INFORMATION TECHNOLOGY

5th & 6th Semester

Bachelor of Technology (Information Technology)
Scheme of Courses (5th SEMESTER)
w.e.f Session 2009-10

Course No.	Subject	Teaching Schedule				Examination Schedule (Marks)				Duration of Exam (Hours)	Credits
		L	T	P	Tot	Th	Sess	PVV	Tot		
IT - 301	Design and Analysis of Algorithms	4	1	-	5	60	40	-	100	3	4.5
IT - 303	Software Engineering	3	1	-	4	60	40	-	100	3	3.5
IT - 305	Microprocessors	3	1	-	4	60	40	-	100	3	3.5
IT - 307	Computer Networks	4	1	-	5	60	40	-	100	3	4.5
IT - 309	Communication Systems	4	1		5	60	40	-	100	3	4.5
IT - 311	Algorithms Pr			2	2	-	60	40	100	3	1.0
IT - 313	Software Engineering Pr	-	-	3	3	-	60	40	100	3	1.5
IT - 315	Microprocessors Pr	-	-	2	2	-	60	40	100	3	1.0
IT - 317	Advanced Java Pr	-	-	3	3	-	60	40	100	3	1.5
IT - 319	Seminar	-	2	-	2	-	100	-	100	-	1.0
IT - 321	Training viva	-				-	100	-	100	-	2.0
Total		18	7	10	35				1100		28.5

Bachelor of Technology (Information Technology)
Scheme of Courses (6th Semester)
w.e.f Session 2009-10

Course No.	Subject	Teaching Schedule				Examination Schedule (Marks)				Duration of Exam (Hours)	Credits
		L	T	P	Tot	Th	Sess	P/V	Tot		
IT - 302	Object Oriented Analysis and Design using UML	3	1	-	4	60	40	-	100	3	3.5
IT - 304	Software Quality Assurance	3	1	-	4	60	40	-	100	3	3.5
IT - 306	Automata Theory	4	1	-	5	60	40	-	100	3	4.5
	Departmental Elective-I	3	1	-	4	60	40	-	100	3	3.5
IT- 312	Computer Networks Pr	-	-	3	3	-	60	40	100	3	1.5
IT - 314	Advanced Pr I	-	-	3	3	-	60	40	100	3	1.5
IT - 316	Visual Programming and Server Side programming Pr	-	-	3	3	-	60	40	100	3	1.5
IT - 318	Software Testing Pr	-	-	3	3	-	60	40	100	-	1.5
HUT-322	Soft skills Workshop	-	2	-	2	-	100	-	100	-	2.0
HUT-312	Business Management	3	1	-	4	60	40	-	100	3	3.5
Total		16	7	12	35				1000		26.5

List of Courses for Departmental Elective - I

1. IT-322 Information Security
2. IT-324 Advanced Diffubase System.
3. IT-326 VHDL

B Tech 5th Semester (Information Technology)

IT-301 Design and Analysis of Algorithms

L	T	P
4	1	

1. Basics of Algorithm Analysis & Design

Stacks, queues, trees, heaps, sets and graphs. Algorithm Definition, Analyzing algorithms, order arithmetic, time and space complexity. [1,2]

2. Algorithm Design Techniques

Divide and Conquer: general method, merge sort, selection problem, other applications of divide & conquer [1]

3. Greedy method

Job Sequencing, Knapsack problem, optimal merge patterns, minimum spanning trees & other applications of Greedy method [1]

4. Dynamic Programming

Use of table instead of recursion, all pair shortest Path, 0/1 knapsack, optimal binary search tree, traveling salesperson problem & other applications of Dynamic programming [1]

5. Search and Traversal

Search techniques: breadth first search, depth first search, code optimization, Internal and External sorting, searching and merging techniques [1]

6. Backtracking

8 queens problem, sum of subsets, graph coloring, knapsack problem & other applications of Backtracking [1]

7. Branch and Bound

0/1 knapsack problem, traveling salesperson problem. Lower Bound Theory: Comparison trees for sorting and searching, Oracles and adversary arguments, techniques for algebraic problems. [1]

8. Problem classes

NP, NP- Hard and NP-complete, deterministic and non-deterministic polynomial time algorithm approximation and algorithm for some NP complete problems. Introduction to parallel algorithms, Genetic algorithms, intelligent algorithms [1,2]

BOOKS:

1. Horowitz, Ellis and Sahni, Sartaj, Fundamentals of Computer Algorithms, 2/e Galgotia Publications.

2. Cormen, Leiserson and Rivest, Introduction to Algorithms, 2/e, PHI.

3. Aho, Hopcroft, and Ullman, The Design and Analysis of Computer Algorithms, 2/e Addison Wesley.

B Tech 5th Semester (Information Technology)

IT-303 Software Engineering

L	T	P
3	1	

1. Introduction

Introduction to Software crisis & Software processes; Software life cycle models – Build & Fix, waterfall, incremental, prototype evolutionary, spiral model, Unified process. [1]

2. Requirement Analysis & Specifications

Requirements engineering, types of requirements, feasibility study, requirement elicitation, analysis, documentation, validation, management, case study [1]

3. Software Project Planning

Size estimation, cost estimation, COCOMO, COCOMO II, Putnam model, risk management [1]

4. Software Design

Design, modularity, strategy of design, function oriented design, object oriented design. [1]

5. Software Metrics

Introduction, token count, data structure metrics, IF metrics, O-O metrics, size metrics, data structure metrics, information flow metrics, entropy-based measures, metric analysis. [1]

6. Software Reliability

Basic concepts, software quality, reliability models, Capability Maturity Models, ISO 9000 [1]

7. Software Testing

Introduction, functional testing, structural testing, levels of testing, debugging, testing tools. [1]

8. Software Maintenance

Introduction, types of maintenance, maintenance models, reverse engineering, re-engineering. [1]

BOOKS:

1. K.K.Aggarwal, Yogesh Singh, Software Engineering, New Age International Ltd, 3rd Ed, 2008.
2. Pankaj Jalote, An Integrated Approach to Software Engineering 3rd Ed, Narosa Publishing, 2005.
3. R.S. Pressman, Software Engineering – A Practitioner's Approach, 6th Ed, TMH, 2007.
4. Ian Sommerville, Software Engineering, 5th Ed., Addison Wesley, 2006.

B Tech 5th Semester (Information Technology)

IT-305 Microprocessors

L	T	P
3	1	

1. 8086 Architecture

CPU architecture, pin out & signal descriptions, internal operation, machine language instructions, instruction execution time, addressing modes, physical address computation, minimum & maximum mode configuration [4]

2. Assembly Language Programming

Assembler, instruction format, assembler directives, data transfer instruction, arithmetic instructions, branch instruction, NOP & HLT instructions, flag manipulation instruction, logical instruction, shift and rotate instruction, directions and operators. [1, 4]

3. I/O Interface

Serial communication, asynchronous, synchronous, physical 8251A, Parallel communication 8255 A, DMA controllers, 16-bit bus interface. [1, 4]

4. Pentium Architecture

Basic architecture of P II/ P III, Memory management models, registers and flags.

Basic data types in P II/ P III, addressing modes, instruction format and types, instruction set and prefixes. [2]

5. Memory Management & advanced Concepts

Modes of operation of P II/ P III – real, protected and virtual; superscalar architecture.

Branch prediction, MMX – register and instruction set, interrupt handling. [2]

BOOKS:

1. Liu and Gibson, Microcomputer Systems: 8086/8088 family: Architecture, Programming and Design, PHI.

2. Brey, Intel Microprocessors, The 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium & Pentium Processor - Architecture, Programming and Interfacing, PHI

3. Intel, Pentium Processor Data Handbook, Intel, 1999.

4. A. K. Ray & K.M. Bhurchandi, Advanced Microprocessors and Peripherals: Architecture, Programming and interfacing, TMH

5. D.V. Hall, Microprocessors and Interfacing, TMH

B Tech 5th Semester (Information Technology)

IT-307 Computer Networks

L	T	P
4	1	

1. Introduction

Network Functions, Network Topology, Network Services, Switching Approaches, Transmission media and systems, multiplexing and signaling techniques, Error detection and correction, ISDN and BISDN.[1]

2. Layered Architectures

Examples, OSI Reference Model, Overview of TCP/IP architecture, Socket system calls, SNMP, Electronic Mail. [1]

3. Peer-to-Peer Protocols

Protocols, Service Models and End-to-End requirements, ARQ, Sliding Window, RTP, HDLC, PPP protocols, Statistical Multiplexing. [1]

4. MAC and LAN Protocols

Multiple access communication, Random Access-ALOHA, Slotted-ALOHA, CSMA, CSMA-CD, Channelization – FDMA, TDMA, CDMA, Channelization in Cellular networks LAN Standards - 802.3, 802.4, 802.5, 802.6, FDDI, 802.11, LAN Bridges.[1]

5. Packet Switching Networks

Packet network topology, Datagram's and Virtual Circuits – Structure of Switch / Router, Connectionless and Virtual Circuit packet Switching, X.25, Routing Algorithms, Traffic management and QoS – FIFO, Priority Queues, Fair Queuing, Congestion Control techniques.[1]

6. TCP/IP

Architecture, Internet protocols – IP packet, Addressing, Subnet addressing, IP routing, CIDR, ARP, RARP, ICMP, Reassembly, UDP, Transmission Control Protocol – TCP, Reliable stream service, operation, protocol.[1]

BOOKS:

1. Leon Garcia and Indra Widjaja, Communication Networks – Fundamental Concepts and Key Architectures, TMH, 2000.

2. A.S. Tanenbaum, Computer Networks, 3/e, PHI, 1997.

3. Forouzan, Coombs and Fegan, Introduction to data Communications and Networks, TMH, 1999.

4. William Stallings, Data and Computer Communications ,5/e, PHI.

B Tech 5th Semester (Information Technology)

IT-309 Communication System

L	T	P
4	1	

1. Spectral Analysis and Noise

Fourier series, Response of linear system Power spectral density, Fourier Transform, Convolution, Parseval's Theorem, correlation between waveforms, Impulse Function, Ideal low pass filter, Hilbert Transform, Random variables, Cumulative distribution function, Probability density function, Average value of random variables Central Limit Theorem Noise and its sources, Methods of noise calculation in network and interconnected networks, Mathematical representation of random noise, Narrow band noise and its representation, Transmission of noise through linear systems, Noise figure, Noise temperature, Computation of signals to noise ratio, and noise bandwidth.

2. Analog Modulation

Introduction, Amplitude Modulation, AM demodulation, Spectrum of AM signal, Double sideband suppressed carrier modulation, single side band modulation, Methods of generating SSB signals, vertical sideband modulation, frequency division multiplexing, angle modulation, Phase and frequency modulation, spectrum of FM signal, bandwidth of FM signal; NBFM & WBFM, FM generation and demodulation methods.

3. Pulse and Digital Modulation Techniques

Sampling theorem for low pass and band pass signals, time division multiplexing, concept of pulse amplitude modulation and pulse width modulation, demodulation of signals, pulse code modulation, delta modulation and adaptive delta modulation, Binary phase shift keying, differential phase shift keying, quadrature phase shift keying, M-ary PSK, QASK, Binary FSK, M-ary FSK, Minimum shift keying.

Code Division Multiple Access Systems

Spread spectrum model, direct sequence spread signals, CDMA system based on frequency hopped spread spectrum signal, Uncertainty, Information and Entropy, Source coding theorem, Data compaction, Discrete memory less channels, Mutual information, Channel capacity, channel coding theorem, information capacity theorem

BOOKS:

1. Simon Haykin, Digital Communication, John Wiley.
2. Taub and Schilling, Principles of Communication System, TMH.
3. G. Kennedy, Electronic Communication System., TMH.
4. J. G. Proakis, Digital Communications, MGH

B Tech 5th Semester (Information Technology)

IT-311 Algorithms Pr

L T P
2

1. Implement the minimum cost spanning tree algorithm.
2. Implement the single source shortest path algorithm.
3. Implement the algorithm for optimal binary search tree.
4. Implement the algorithm for Job sequencing with deadlines.
5. Implement the algorithm for sum of subsets problem.
6. Implement the algorithm for travelling sales person problem.
7. Implement the algorithm for knapsack problem.
8. Implement the algorithm for n-queen problem.
9. Implement the algorithm for graph coloring.
10. Implement the algorithm for all pair shortest path.

B Tech 5th Semester (Information Technology)

IT-313 Software Engineering Pr

L	T	P
-	-	3

Note: - Implement the following programs using C.

1. Implement Halstead's equation to compute various science metrics like volume etc., language level, estimated program length, effort and time in a program.
2. Compute average number of live variables per statement in a program.
3. Compute average life of variables in a program.
4. Compute psychological complexity of a program.
5. Compute McCabe's cyclomatic complexity of a program and generate its control graph.
6. Use some CASE tool for identifying various phases of software engineering, generate SRS document, design document like DFD and ER diagram, test cases generation for result automation, engineering admission automation (seat allocation during counseling).

B Tech. 5th Semester (Information Technology)

IT-315 Microprocessors Pr

L T P
2

1. Write a program to print the alphabets.

2. Write a program to read a integer number of max (16 bit), store that number in a register and display it digit by digit.

3. Repeat exercise 2 for 32 bit number.

4. Write a program to find factorial of a number, where result does not exceed 32 bit. Use procedure to calculate factorial and pass parameters.

5. Write modular program to perform addition, subtraction, multiplication and division of two 16-bit numbers.

6. Repeat exercise 5 for two 32-bit numbers.

7. Sort n numbers using modular program.

8. Check whether a given string is palindrome or not.

9. Reverse an input string.

10 Merge two sorted list of integers.

11. Using int 10h, change the size of cursor, change the position of the cursor based on user's choice.

12. Write some programs, which use multiple data segments and multiple code segments. Do these programs by defining different segments in different files and link all of them to get the desired output.

B Tech 5th Semester (Information Technology)

IT-317 Advanced Java Pr

L	T	P
		3

PROGRAMS IN JDBC

1. Write a JDBC Application which inserts data at run time
2. Write a JDBC Application to select values from table using prepared statement
3. Write a JDBC Application to design a form
4. Write a JDBC Application to find out all the tables in the database
5. Write a JDBC Application reading dates and null values from data base
6. Write a JDBC Application for SQL Procedure execution with both IN and OUT parameter using callable statement.
7. Write a JDBC Application for SQL function execution using callable statement

NETWORKING

1. Write a Client/Server Application using stream sockets
2. Write a Client /Server Application using datagram sockets
3. Write a Program for Simple file transfer
4. Write a Program for Multithreaded FTP server.

RMI

1. Write a Program for RMI Application
2. Write an RMI Application for invoking the data base to retrieve the results

JAVA BEANS

1. Write a Bean application for simple property
2. Write a Bean application for an Boolean property
3. Write a Bean application to retrieve the values from the table by invoking database.
4. Write a Bean Application for Indexed Property
5. Write a Bean Application for a Bound Property.
6. Write a Bean Application for a Constrained Property.
7. Write a Bean Application for Rotating a Molecular Bean

SERVLETS

1. Write a Servlet Program for Displaying a Message In a Browser Using Generic Servlet
2. Write a Servlet Program to Communicate HTML Served.
3. Write a Servlet Program to Communicate the HTML-Servlet-Database.
4. Write a Servlet Program to Retrieve the Results from a Table in the format
5. Write a Servlet Program for Session Tracking using Hidden Form Fields
6. Write a Servlets Program for Session tracking using HTTP Session.
7. Program for session tracking using cookies

BOOKS

1. Deitel & Deitel, Java How to Programming, 3rd Edition ,Pearson Education.
2. Campione, Java Tutorial Continued, Addison Wesley

1. Patrick Naughton, The Complete Reference Java2, 4th Edition
2. V.Rajaraman, Introduction to Java Programming, PHI, 2002
3. Balaguruswamy, Introduction to Java.
4. Java Programming - Schaum Series.
5. Bruce Eckel,Thinking in Java, Pearson.
6. Cay Horstmann, Computing Concepts with Java 2 Essentials, John Wiley

B. Tech 6th Semester (Information Technology)

IT-302 Object Oriented Analysis and Design using UML

L	T	P
3	1	-

1. Review of Object Oriented Systems

Design Objects, Class hierarchy, inheritance, polymorphism, object relationships and associations, aggregations and object containment, object persistence, meta-classes, Object-oriented systems development life cycle, Software development process Object Oriented systems development: a use-case driven approach.[1,2]

2. Methodology for Object Oriented Design

Object modeling technique as software engineering methodology, Rumbaugh methodology, Jacobson Methodology, Booch Methodology, Patterns, Frameworks, the unified approach, unified modeling language (UML). [1]

3. Unified Modeling language

Introduction, UML diagrams, UML class diagrams, Use Case diagrams, UML dynamic modeling, Packages and model organization, UML extensibility, UML meta model. [1]

4. Object Oriented Analysis

Analysis Process, Use-Case Driven Object Oriented Analysis, Use-Case Model, Object Classification, Theory, Different Approaches for identifying classes, Classes, Responsibilities and Collaborations, Identifying Object Relationships, Attributes and Methods, Super-sub Class Relationships, A-Part Of Relationships-Aggregation, Class Responsibilities, Object Responsibilities. [1,2]

5. Object Oriented Design

Object oriented design process, corollaries, design axioms, design patterns, object oriented design philosophy, UML Object Constraint Language, Designing Classes: The Process, Class Visibility, Refining Attributes, Designing Methods and Protocols, Packages and Managing classes, Designing Interface Objects, View layer interface design, Macro and Micro level interface design process. [1,2]

BOOKS:

1. Ali Bahrami, Object Oriented Systems Development, McGraw Hill, 1999.

2. Rumbaugh et. al, Object Oriented Modeling and Design, PHI, 1997.

3. Wendy Boggs, Michael Boggs , Mastering UML with Rational Rose, Sybex BPB Publications, 2007.

4. Alan Dennis, B H Wixom, D Tegarden, Systems Analysis & Design with UML version 2.0 An Object Oriented Approach, 2nd Edition, Wiley India, 2007.

B. Tech 6th Semester (Information Technology)

IT-304 Software Quality Assurance

L	T	P
3	1	4

1. **Product Quality & Process Quality:** Introduction, software system evolution, product quality, models for software product quality, process quality. [1]

2. **Functional Testing:** Boundary Value Testing: Analysis, robust testing, worst case testing, special & random testing, examples ; Equivalence Class Testing- equivalence classes, examples; Decision Table Based Testing, decision tables with examples. [2]

3. **Structural-Testing:** Path testing: DD-Paths, Metrics, basic path testing, Data Flow Testing, DU testing, slice based testing, Mutation testing. [2]

4. **Integration & System Testing:** levels of testing, integration testing: decomposition based, call graph based & path based integration; System testing: threads based structural & functional testing. [2]

5. **Object Oriented Testing:** Some issues in Object Oriented Testing, Units for object-oriented testing, implications of composition and encapsulation, implication of inheritance, implication of polymorphism, and levels of object-oriented testing [2]

BOOKS:

1. N.S. Gudbole, Software Quality Assurance Principles & Practice, Narosa Publications, 2003
2. Paul C Jorgensen, Software Testing A Craftsman's Approach, 2nd Ed., CRC Press, 2002
3. Boris Beizer, Software Testing Techniques, Second Edition, Wiley India, 2005.
4. William Perry, Effective Methods for Software Testing, 3rd Edition, Wiley India, 2006.
5. Cem Kaner, Jack Falk, Nguyen Quoc, Testing Computer Software, Second Edition, Van Nostrand Reinhold, New York, 1993.
6. Louise Tamres, Software Testing, Pearson Education Asia, 2002

B. Tech 6th Semester (Information Technology)

IT-306 Automata Theory

L	T	P
4	1	

1. Introduction

Introduction to Finite State Machine, Moore and Mealy FSMs. Equivalence, Regular Languages, Regular expressions, The memory required to recognize a language, Distinguishing one string from another, unions, Intersections and Complements, Finite automata, NFA, NFA with null transitions, Equivalence, Criterion for Regularity, Minimal Finite Automata, The pumping lemma, decision problems, Finite automata, Non-determinism and Kleen's Theorem, Regular and Non-regular languages. [1]

2. Context-Free Language

Context – Free Grammars, Definition of CFG, example of familiar languages, unions, concatenations and closures of CFLs, Derivation Tree, Ambiguity, unambiguous CFG for algebraic expressions, Simplified forms and normal forms, Push down automata, definition, deterministic PDA, PDA to CFG and Vice Versa, Parsing. Context Free and Non Context Free Languages, Pumping lemma for CFG, Intersection and complements of CFL. [1]

3. Turing Machines

Definition, Turing Machining as Language acceptors, combining TM, computing Partial Function with TM. Recursively Enumerable and Recursive Languages, Regular Grammars, context Sensitive grammars, Chomsky Hierarchy. Concept of unsolvability & reducibility, Halting Problem, Post correspondence Problem, Rice theorm[1]

4. Computability

Primitive Recursive Functions, Primitive Recursive Predicates and some bounded operations, unbounded minimalization and recursive functions, Godel Numbering, Non-computable-functions.Growth rates of functions, Time and space complexity of TM, complexity Classes, P and NP, Polynomial-Time, Reductions and NP-Completeness, Cook's Theorem. [1]

BOOKS:

1. John C. Martin, Introduction to Languages and the Theory of Computation, MGH.

2. Lewis & Papadimitriou, Elements of the Theory of Computation, PHI.

3. Daniel I.A. Cohen, Introduction to Computer Theory: John Wiley.

4. J.E. Hopcroft and J.D. Ullman, Introduction to Automata Theory Languages and Computation, Narosa.

B. Tech 6th Semester (Information Technology)

IT-322 Information Security

L	T	P
3	1	

1. Introduction

Meaning of security, attacks, Computer Criminals, Methods of defense [1]

2. Elementary Cryptography

Introduction, Substitution ciphers, Transpositions, Data encryption standard, AES Encryption Algorithm, Public key Encryption, Uses of Encryption. [1]

3. Program Security

Secure Program, Non Malicious Program errors, Viruses and other malicious code, Targeted Malicious Code, Control against Program. [1]

4. Protection in General Purpose Operating System

Overview, File Protection Mechanisms, User Authentication, Designing Trusted Operating System, Security Policy, Models of Security, Trusted Operating System Design [1]

5. Database Security & Security in Networks

Introduction to Database Security Requirements, Reliability and Integrity, Sensitive Data,Inference,Multileveldatabase.Networksecurity:NetworkConcepts,ThreatsinNetworks Networks ,Security controls, Firewalls ,Intrusion Detection System, Secure Email[1]

6. Administering Security

Risk analysis, legal, Privacy & Ethical issues, Computer Security: Protecting Programs and Data [1]

BOOKS:

1. Charles P.Pfleeger ,Share Lawrence Pfleeger, Security in Computing, Pearson Education, 2/e.

2. Charlie Kaufman, Perlman & S Peeciner, Network Security, Pearson Education, 2/e.

B. Tech 6th Semester (Information Technology)

IT-324 Advanced Database System

L	T	P
3	1	

1. Parallel & Distributed Databases

Architecture for parallel databases, Parallel query evaluation, parallel sing individual operations, parallel query optimization; Introduction to distributed databases, distributed DBMS architectures, storing data in a distributed DBMS, distributed catalog management, distributed query processing, updating distributed data, introduction to distributed transactions, distributed concurrency control, recovery.

2. Data Mining

Introduction, counting co-occurrences, mining for rules, tree structured rules, clustering, similarity search over sequences.

3. Object Database Systems

User defined ADT, structured types, objects & reference types, inheritance, design for an ORDBMS, challenges in implementing an ORDBMS, OODBMS, and comparison of RDBMS with OODBMS & ORDBMS.

4. Advanced Topics

Advanced transaction processing,, integrated access to multiple data source, mobile databases main memory databases, multimedia databases, GIS, temporal & sequence databases.

BOOKS:

1. R. Ramakrishna & J. Gehrke Database Management Systems MGH, International Ed., 2000.

2. Kurth, Silberschatz, Sudarshan: Data Base concepts, MGH, 2001.

3. C. J. Date, Database Systems, 7th Ed., Addison Wesley, Pearson Education, 2000.

B. Tech 6th Semester (Information Technology)

IT-326 VHDL

L	T	P
3	1	-

1.Introduction to HDL: Design Flow, Design Methodologies, HDL History, Capabilities, Hardware Abstraction, Basic Terminology, Model Analysis, Comparison between VHDL and Verilog.[1]
2.Basic VHDL Elements: Identifiers, Data objects,Data Types, Operators. [1,2]
3.Behavioral Modeling: Entity declaration, architecture body, Various Sequential Statements and Constructs, multiple processes, postponed processes. [1]
4.Dataflow modeling: Concurrent Signal Assignment Statements, delta delay model, multiple drivers, block statement, concurrent assertion statement. [1]
5.Structural modeling: Component Declaration, component Instantiation, resolving signal values. [1]
6.Supporting Constructs: Generics and Configuration, Subprograms and Overloading, Operator overloading, Package declaration, package body, design Libraries, visibility. [1, 2]
7. Advanced Features: Generate statements, qualified expressions, type conversions, guarded signals, attributes, aggregate targets. [1]
8.Programmable Logic Devices (PLD) and Field Programmable Gate Arrays (FPGA): Basic Concepts, Architecture and Usage. [1,2]
9.Combinational Logic Design: Adders/Subtractors, ALU, Multipliers, Shifters.[1,2]
10.Sequential Logic Design: Synchronous Sequential Circuits, Asynchronous Sequential Circuits. [1,2]

BOOKS:

1. J.Bhasker, A VHDL Primer, 2/e,,PHI.

2. Fundamentals of Digital logic Design with VHDL, 2/e, TMH.

3. D. Perry, VHDL, 3rd Ed,TMH.

4. Skahil, VHDL for Programmable logic,2nd Ed , Wiley.

B. Tech 6th Semester (Information Technology)

IT-312 Computer Networks Pr

L	T	P
		3

1. Study of various topologies of Network
2. RJ-45 connector and its circuit diagram
3. BNC connector and its circuit diagram
4. Thick & Thin coaxial cable
5. CKT diagram of terminator
6. CKT diagram of T-connector
7. Study pf different type of cable in designing (10 base 7, 10 base 2, 10 base 5, UTP OFC)
8. CKT diagram of network interface card.
9. Study of bridge, router, hub, gateways.
10. Layout of installation of LAN with S/W & H/W requirement.

B. Tech 6th Semester (Information Technology)

IT-314 Advanced Pr I

L	T	P
-	-	3

NOTE: In Advanced Pr I some Practicals based on other papers offered in this semester and/or following UML based practicals will be performed using Case tool.

Implement the following programs using UML Notations

1. Create an ATM system model including all object diagrams.
2. Create a use case diagram for order processing system.
3. Create a model to study message transfer between objects.
4. Create sequence & collaboration diagram to add a new order in order processing system.
5. Take the classes created in above programs and group them into packages.
6. Study the concept of addition of attributes to the classes designed above.
7. Study the concept of relationship between classes that participate in the Enter New Order use case.

B. Tech 6th Semester (Information Technology)

IT-316 Visual Programming & Server Side Programming Pr

L	T	P
		3

1. Write a Program using ASP to check whether a folder exists on a server or not
2. Write a Program using ASP Get File method is used to find out information about a given file.
3. Write a Program using ASP for HTTP screen-scraping and caching.
4. Write a Program using ASP to display the information after submission from user.
5. Write a Program in ASP to display present day, month & date. Also display digital clock.
6. Send information to the user after he submit the form using GET & POST method & implement form validation.
7. Write a Program in ASP that has a Form taking the user's name as input. Store this name in a permanent cookie & whenever the page is opened again, then value of the name field should be attached with the cookie's content.
8. Use ad-rotator to change advertisements on client side request.
9. Create a Session dictionary using object tag. In session-on start add keys for time, user agent, remote I.P. & add appropriate values. Create a simple page to display the values.
10. Implement Session tracking using user authentication.
11. Write a Program to delete all cookies of your web site that has created on the client's computer.
12. Write a Program in ASP to check the capabilities of the browser using browser capability component.

BOOKS:

1. Jason Hunter & William Crowford, Java Servlets Programming, O Reilly,2nd Edition, 2001.
2. Marty Hall, Larry Brown and Yaskov Caikin ,Core Servlets and JSP, 2nd Edition.
3. Marty Hall, More Servlets and JSP
4. Kent Marreau & Jill Batistick, ASP Web Warrior Series, 1st Edition.
5. Manuel Alberto Ricart & Stephen Asbury ,ASP 3 Developer's Guide,Hungry Minds Pap/cdr Edition.

B Tech 6th Semester (Information Technology)

IT-318 Software Testing Pr

L	T	P
-	-	3

(A) Implement the following in C/C++

1. Develop a formula for the number of robustness test cases for a function of n variables.
2. Develop a formula for the number of robust worst test cases for a function of n variables.
3. Find a Cyclomatic complexity of the graph.
4. Study the development of decision table for the triangle problem.
5. Study the development of decision table for the next date function.
6. Develop a program for the data flow testing.
7. Develop the program for the white box testing.
8. Develop the boundary value analysis (test case) on triangle problem.
9. Develop the boundary value analysis (test case) on next date function.

(B) Developing a Small Project /Tool to Generate Test data, to Execute test data etc.

(C) Exposure to Automated Case tool

BOOKS:

1. Paul C. Jorgensen, Software testing--A Craftsman's Approach, 2nd Edition, CRDC Press
2. Pankaj Jalote, An Integrated Approach to Software Engineering, 3rd Edition Narosa Publications
3. Meyers, Art of Software Testing ,2nd Edition , John Wiley Publication,2004

B Tech 6th Sem (Information Technology)

HUT-322 Soft Skills Workshop

L	T	P
-	2	-

The course is framed to develop soft skills of students to a level when they can communicate effectively in professional and social situations orally as well as in writing. Keeping in mind the wide variation in the backgrounds of participating students, the contents and the approach have been kept flexible and may be modified by the teachers to suit individual needs.

Introduction to the process of communication: types of communication; common barriers and their remedies. Verbal and non-verbal communication; common errors in usages and syntax; figurative use of language. Learning pronunciation, stress and intonation through language lab. Body language – its importance and effective use in verbal communication.

Writing technical papers and reports for publication. Preparation of reports/papers for oral presentation – common errors and misconceptions, especially in power point presentation. Handling questions.

Group discussion; dos and don'ts for participation in a GD. Preparing a CV/Resume and writing a job application. The art of interview performance.

B Tech 6th Semester (Information Technology)

HLT-311 Business Management

L	T	P
3	1	-

Note to the paper setter: The number of questions to be set will be seven, one from each unit. Out of these one question will be compulsory. The examinees will be required to attempt the compulsory one and any other four questions. All questions shall carry equal marks.

UNIT – I **Business Environment:**

Business : Concept, nature and objectives. Social Responsibility of Business

Environment: Meaning of environment, Constituents of business environment; Economics, Social, political, legal and technological environment.

UNIT – II **General Management**

Management: Definition, nature and significance, Henry Fayol's Principal of Management; Human Relations Approach Functions of Management (i) Planning (ii) Organising (iii) Directing and (iv) Controlling.

UNIT – III **Financial Management**

Introduction of Financial Management, Objectives of Financial Decisions, Status and duties of Financial Executives. Financial Planning – Tools of financial planning. Management of working capital, Factors affecting requirements of working capital. Cap ital structure decision. Features of appropriate capital structure. Sources of finance.

UNIT – IV **Personnel Management**

Personnel Management – Meaning, Nature and importance; Functions of Personnel Management – (a) Managerial Functions and (b) Operative functions. Job Analysis: Meaning and importance; Process of Job Analysis; Job Description

and job specification. Human Resource Development- Meaning and concept.

UNIT – V **Production management**

Production management: Definition and Objectives

Plant location: Ideal plant location. Factors affecting plant location.

Plant Layout : Ideal Plant layout, factors affecting Plant layout.

Work Measurement: Meaning, Objectives and Essentials of work Measurement.

Production Control: Meaning and importance of production control and steps involved in production control.

UNIT – VI **Marketing Management**

Nature scope and importance of marketing management. Modern Marketing concepts. Role of marketing in economic development. Marketing Mix. Marketing information System. Meaning, nature and scope of International Marketing.

BOOKS :

1. Business Environment- Francis Cherunilam (Himalaya Publishing House)
2. Management- Harold, Koontz and Cyrilo' Donell (Mc Graw Hill)
3. Principles of Personnel Management – Edwin B. Flippo (Mc Graw Hill)
4. Personnel Management and Industrial relations – D.C.Sharma and R.C.Sharma (SJ Publications, Meerut)
5. Basic Marketing – Cundiff and Still (PHI, India)
6. Marketing Management – S.A. Sherlekar (Himalaya Publishing House, Bombay)
7. Principles of Practice of Management – L.M.Prasad
8. Financial Management – J.M.Pandey (Vikas Publication House, New Delhi)
9. International Marketing – Varn terpestre and Ravi Sreathy
10. Production Management – E.S.Buffa and W.H.Tausart, Richard D.Irwin, Homewood, Illionis.
11. Personnel Management – C.B.Mamoria (Himalaya Publishing House)

SCHEME & SYLLABUS FOR PROGRAM B.TECH INFORMATION TECHNOLOGY

7th & 8th Semester

Bachelor of Technology (Information Technology)
Scheme of Courses (7th SEMESTER)
W.e.f Session 2009-10

Course No.	Subject	Teaching Schedule				Examination Schedule (Marks)				Duration of Exam (Hours)	Credits
		L	T	P	Te	Th	Sess	PWV	Tot		
	Open Elective-I	3	1		4	60	40	-	100	3	3.5
IT – 401	Advanced Data Structures	3	1	-	4	60	40	-	100	3	3.5
IT – 403	Compiler Design	3	1	-	4	60	40	-	100	3	3.5
IT – 405	Software Project Management	3	1	-	4	60	40	-	100	3	3.5
	Departmental Elective II	3	1		4	60	40	-	100	3	3.5
IT – 411	Advanced Data Structures Pr			3	3	-	60	40	100	3	1.5
IT – 413	Minor Project	-	-	6	6	-	60	40	100	3	6.0
IT – 415	Training Viva	-	-	-	-	-	100	-	100	-	2.0
IT – 417	Seminar	-	1	-	1	-	100	-	100	-	1.5
Total		15	6	9	30				900		29.5

List of Courses for Departmental Elective II

1. IT-421 Data Warehousing and Data Mining
2. IT-423 Advanced Communications
3. IT-425 Computer Graphics
4. IT-427 Security & Cryptography
4. IT-429 Mobile Computing

Bachelor of Technology (Information Technology)
Scheme of Courses (8th SEMESTER)
W.e.f Session 2009-10

Course No.	Subject	Teaching Schedule				Examination Schedule (Marks)				Duration of Exam (Hours)	Credits
		L	T	P	Tot	Th	Sess	PVV	Tot		
	Open Elective-II	3	1	-	4	60	40	-	100	3	3.0
IT – 402	Statistical Models for Computer Science	3	1	-	4	60	40	-	100	3	3.5
IT – 404	Advanced Networks	3	1	-	4	60	40	-	100	3	3.5
	Departmental Elective III	3	1	-	4	60	40	-	100	3	3.5
IT – 412	Advanced JAVA			2	2	-	60	40	100	3	1.0
IT – 414	Major Project	-	-	11	11	-	60	40	100	3	14.0
IT – 416	General Fitness & Professional Aptitude	-	-	-	-	-	-	-	100	-	3.0
IT – 418	Seminar	-	1	-	1	-	100	-	100	-	1.5
Total		12	5	13	30				800		30.0

List of Courses for Elective III

1. IT-422 Distributed Operating System
2. IT-424 E-Commerce
3. IT-426 Artificial Intelligence
4. IT-428 Embedded System
5. IT-430 E-Governance
6. IT-432 Natural Language Processing
7. IT-434 Multimedia Techniques

B. Tech 7th Semester (Information Technology)
IT-401 Advanced Data Structures

L	T	P
3	1	

Unit-1: Review of Elementary Data Structures: Arrays, linked lists, stacks, queues, binary trees, hashing, graphs, sorting & searching techniques; Sparse Matrices: Properties of sparse matrices, Linked list representation of sparse matrices

Unit-2: Threaded Trees: Properties of threaded trees, insertion, deletion and traversal AVL Trees: Properties of AVL trees, rotations, insertion and deletion. Red-Black Trees: Properties of red-black trees, rotations, insertion and deletion.B-Trees: Definition of B-trees, basic operations on B-trees, deleting a key from a B-tree.

Unit-3: Heaps: Properties of Min-max heaps, building a heap, basic operations on heaps, application of min-max heaps. Binomial heaps: Binomial trees and binomial heaps, operations on binomial heaps. Fibonacci heaps: Structure of Fibonacci heaps, mergeable heap operations, decreasing a key and deleting a node, bounding a maximum degree

Unit-4: Data Structures for Disjoint Sets: Disjoint set operations, linked list representation of disjoint sets, disjoint set forests.

Unit-5: Graph Algorithms: Topological sort, minimum Spanning tree, single-source shortest paths, all-pairs shortest paths, bi-connected components, strongly connected components, cycles, articulation points, bridges.

Unit-6: String Matching: string-matching algorithm, Rabin-Karp algorithm, String matching with automata, Knuth-Morris-Pratt algorithm, Boyer-Moore algorithm.

BOOKS:

1. E Horowitz and S. Sahni, Fundamentals of Data Structures, Galgotia, 1999
2. R.B. Patel, Expert Data Structures in C, Khanna Publishers, 2001.
3. R.L. Kruse, Data Structures & Program Design in C, PHI.
4. D.E. Knuth, The art of Computer Programming Vol I, Narosa Publications, 1985.
5. Byron S. Gottfried, Theory and Problems of Programming with C Language, Schaum Series, TMH, 1998.
6. Cormen, Leiserson and Rivest, Introduction to Algorithms, 2/e, PHI.
7. Horowitz, Ellis and Sahni, Sartaj, Fundamentals of Computer Algorithms, Galgotia Publications.
8. Aho, Hopcroft, and Ullman, The Design and Analysis of Computer Algorithms, Addison Wesley.

B Tech 7th Semester (Information Technology)

IT-403 Compiler Design

L	T	P
3	1	

1. Introduction & Lexical Analysis

Introduction and types of translators, the structure of a compiler, design of lexical analyzer, specification & implementation of lexical analyzer. Parsers shift-reduce parsing, operator- precedence parsing, top-down parsing, recursive descent parsing, predictive parsers. [1]

2. Parsing Techniques & Syntax Directed Translation

LR Parsers, the canonical collection of L. R (0) items, construction of SLR parsing tables, constructing canonical L.R. Parsing tables, Constructing LALR parsing tables, implementation of LR Parsing tables Syntax-directed translation schemes, implementation of syntax directed translators, intermediate code, postfix notation, parse trees and syntax trees, three address code, quadruples, and triples, translation of assignment statements, Boolean expressions, control statements. [1]

3. Symbol Table & Run Time Storage Administration

The contents of a symbol table, data structures for symbol tables, representing scope information. Implementation of a simple stack allocation scheme, implementation of block structured languages, storage allocation in block structured language. Error-lexical phase errors, syntactic phase errors, semantic errors. [1]

4. Code Optimization & Code generation

The principle sources of optimization, loop optimization, the DAG representation of basic blocks, value number and algebraic laws, global data-flow analysis, Object programs, problems in code generation, a machine model, a simple code generator, register allocation and assignment, code generation from DAGs, peephole optimization. [1]

BOOKS

1. Aho A.V. and Ullman J.D, Principles of Compiler Design, Addison Wesley.
2. Donovan, J, Systems Programming, TMH.
3. D.M. Dhamdhere, Compiler Construction-Principles and Practice,McMillan India.
4. David Gries, Compiler Construction for Digital Computer.

B. Tech 8th Semester (Information Technology)

IT-405 Software Project Management

L	T	P
3	1	

1. Conventional Software Management.

Evolution of software economics. Improving software economics: reducing product size, software processes, team effectiveness, automation through software environments. Principles of modern software management.

2. Software Management Process

Framework: Life cycle phases- inception, elaboration, construction and training phase. Artifacts of the process- the artifact sets management artifacts, engineering artifacts, and pragmatics artifacts. Model based software architectures. Workflows of the process. Checkpoints of the process.

3. Software Management Disciplines

Iterative process planning. Project organizations and responsibilities. Process automation. Project control and process instrumentations- core metrics, management indicators, life cycle expectations. Process discriminants.

BOOKS:

1. Walker Royce, Software Project management, Addison Wesley, 1998.
2. Harvey Maylor, Project management, Pearson edition, 3rd Ed,2006
3. W.S. Humphrey, Managing the Software Process, Addison Wesley,2005
4. Ramesh, Managing global software Projects, TMH, 2001.

B. Tech 7th Semester (Information Technology)
IT-421 Data Warehousing and Data Mining

L	T	P
3	1	

Unit-1: Data warehousing: Definition, usage and trends, DBMS vs. data warehouse, Data marts, Metadata, Multidimensional data mode, Data cubes, Schemas for Multidimensional Database: stars, snowflakes and fact constellations.

Unit-2: Data warehouse process & architecture, OLTP vs. OLAP, ROLAP vs. MOLAP, types of OLAP, servers, 3-Tier data warehouse architecture, distributed and virtual data warehouses, data warehouse manager.

Unit-3: Data warehouse implementation: computation of data cubes, modelling OLAP data, OLAP queries manager, data warehouse back end tools, complex aggregation at multiple granularities, tuning and testing of data warehouse.

Unit-4: Data mining: definition & task, KDD versus data mining, data mining techniques, tools and applications.

Unit-5: Data mining query languages, data specification, specifying knowledge, hierarchy specification, pattern presentation & visualization specification, data mining languages and standardization of data mining.

Unit-6: Data mining techniques: Association rules, Clustering techniques, Decision tree, knowledge discovery through Neural Networks & Genetic Algorithm, Rough Sets, and Support Vector Machines and Fuzzy techniques.

Unit-7: Mining complex data, objects, Spatial databases, Multimedia databases, Time series and Sequence data, mining, Text Databases and mining; Word Wide Web.

BOOKS:

1. Sam Anahory & Dennis Murray, *Data Warehousing In the Real World*, Pearson, 1997.
2. Jiawei Han & Micheline Kamber, Data Mining- Concepts & Techniques, Morgan Kaufmann, 2001.
3. Arun Pujar, Data Mining Techniques, University Press, Hyderbad, 2001.

REFERENCE BOOKS:

1. Pieter Adriaans & Dolf Zantinge, Data Mining, Pearson, 1997.
2. Alex Berson, Data Warehousing, Data Mining and OLTP, Mc Graw Hill, 1997.
3. Mallach, Data warehousing system, Mc Graw Hill, 2000.
4. W.H. Inman, Building the Data Warehouse, John Wiley & Sons,1995.
5. W.H Inmhman, C.Kielly, Developing the Data Warehouses, John Wiley & Sons.
6 W.H Inman, C.L.Gassey, Managing the Data Warehouses, John Wiley & Sons.

B Tech 7th Semester (Information Technology)

IT-423 Advanced Communications

L	T	P
3	1	

1. Physical Layer

Theoretical basis for Data Communication, Guided Transmission Media, Wireless Transmission Media, Wireless Transmission, Communications Satellites,PSTN,Mobile Telephone System, Cable television.[2]

2. Wireless Networks

Introduction to 1G Cellular Networks, 2G Cellular Networks, 3G Cellular Networks & 4G Cellular Networks, IEEE 802.11 Standard, IEEE 802.11 a/b/c Standards, IEEE 802.15 Standard ,IEEE 802.16 Standard, IEEE 802.20 Standard, IEEE 802.21 Standard.[1]

3. Cellular Standards

AMPS & CTACS,IS-54 &IS-36, GSM, CDMA Digital Cellular Standard,CT2 Standard for Cordless Telephone, Digital European Cordless Telephone (DECT), PACS,PDC,PHS, US PCS, UMTS, IMT-2000,LTE.[1]

4. Mobile Radio & Security issues in Mobile and Wireless Networks

Mobile radio, Cellular Telephony, Mobile, Radio propagation, Small Scale & Multipath fading . Security issues in Mobile and wireless networks, Need for security, Attacks on Wireless Networks, Security Aspects in Cellular Standard (eg.GSM-Pin code protection, Mobile Cloning, Authentication, Encryption, TMSI), Security Services, WEP, WPA. [1,3]

BOOKS

1. Theodore S. Rappaport, Wireless Communications-Principles & Practices, 2nd Edition, PHI.
2. Andrew S. Tanenbaum, Computer Networks, 4th Edition, PHI.
3. P.Nocopolitidis, Wireless Networks, John Wiley & Sons.

B Tech 7th Semester (Information Technology)

IT-425 Computer Graphics

L	T	P
3	1	

1. Basic Concept

Introduction, Point Plotting technique, Coordinate System, Line drawing algorithm, Circle generation, Line drawing display, storage tube display, refresh line drawing display.

2. Computer Graphics Devices

Point and positioning drive, light pen, mouse, tablet, Input technique, Positioning technique and character recognition.

3. 2-D and 3-D transformation

Basic transformation, homogeneous coordinate system, composite and other transformation, Point and line clipping, polygon clipping, text clipping, view planes.

4. Interactive Raster Graphics

Raster graphics fundamental, solid area Scan Conversion, Interactive raster graphics, Raster graphics systems.

5. 3-D Graphics

Curve and Surfaces, Bezier and B-spline method, perspective depth, Hidden Surface elimination, depth buffer algorithm, scan line coherence and area coherence algorithm, priority algorithm.

6. Graphics Systems

Device Independent graphs system, Graphics System design, Case Study of Graphics, Kernel System.

BOOKS

1. Hearn and Baker, Computer Graphics, 2nd Ed., PHI.
2. Rogers, Principles of Computer Graphics, MGH.
3. Foley, Fundamentals of Interactive Computer Graphics, Addison Wesley.
4. Harrington, Computer Graphics – A Programming approach.
5. Newmann and Sproull, Introduction to Interactive Computer Graphics.

B Tech 7th Semester (Information Technology)

IT-427 Security and Cryptography

L	T	P
3	1	

1. Traditional Cryptography

Cryptanalysis, substitution and transposition ciphers, Cryptographic principles, secret-key algorithms: DES, DES chaining, Breaking DES, IDEA, Differential and Linear cryptoanalysis Public-key algorithms: RSA, Knapsack

2. Authentication protocols

KDC protocol, shared secret key, Diffie-Hellman key exchange, Needham-Schroeder protocol, using Kerberos, interlock protocol, digital signatures secret key and public key signatures, DSS, message digest, MD5 and secure hash algorithms

3. Computer Security Mechanisms

Role of different security mechanisms, passwords technology and administration, principles of database system security, epidemic of viruses: types of viruses, study of different virus codes, means of spread, prevention from virus, life cycle of a virus, immunization, Trojan horse and bombs with examples, writing antivirus/Trojan codes

4. Network Security

Basics, security functions, preventing loss and damage, securing local area network – authorization, security plan and policy, securing enterprise network – setting priorities, security plans, securing network components, hardware security, levels of access control and authorization

BOOKS

1. Richard H. Baker, Network Security, McGraw Hill International Ed.,1996.
2. B. Schneier, Applied Cryptography, John Wiley New York, 1996.
3. C. Kaufman ET. al, Network Security, Prentice Hall International, 1998.

B Tech 7th Semester (Information Technology)

IT-429 Mobile Computing

L	T	P
3	1	

1. Introduction

Introduction, Challenges in mobile computing, coping with uncertainties, resources poorness, bandwidth etc.Cellular architecture, co-channel interference, frequency reuse, capacity increase by cell splitting. Evolution of mobile system: CDMA, TDMA, FDMA, GSM.Mobility management, Mobility handoff, types of handoffs, location management, HLR-VLR scheme, hierarchical scheme, predictive location management schemes, mobile IP, cellular IP.

2. Data models & File system

Publishing & Accessing data in Air: Pull & push based data delivery models, data dissemination by broadcast, broadcast disks, directory service in air energy efficient indexing scheme for push based data delivery.

File system support for mobility: Distributed file sharing for mobility support, Coda and other storage manager for mobility support.

3. Ad-Hoc Networks

Ad-hoc network routing protocols: Destination sequenced distance vector algorithm, cluster based gateway switch routing, global state routing, fish eye state routing, dynamic source routing, and ad-hoc on demand routing, zonal routing algorithm.

4. Transaction models & commerce

Mobile transaction and commerce: Model for mobile transaction, Kangaroo and Joye Transaction model, payment model for mobile transaction, electronic payment, team transaction protocols for mobile commerce.

BOOKS

1. Dejan Milojicic, Fedrick Douglis, Richard Wheeler, Mobility: processes, Computers & Agents, Addison-Wesley Professional, 1999.

2. Yi-Bing Lin & Imrich Chlamtac, Wireless and Mobile Networks Architectures, John Wiley & Sons, 2001.

3. Raj Pandya ,Mobile & Personal Communication systems & services, PHI, 2001.

B. Tech 7th Semester (Information Technology)

IT-411 Advanced Data Structures Pr

L	T	P
		3

1. Write a program to insert and delete the nodes in link list at different locations.
2. Write a program to implement the concept of binary search tree.
3. Write a program to implement the concept of AVL tree.
4. Write a program to implement the concept of Red Black tree.
5. Write a program to implement the concept of B trees.
6. Write a program to implement the heap sort.
7. Write a program to implement the concept of Fibonacci heaps.
8. Write a program to implement the concept of binary search tree.
9. Write a program to implement the all pair shortest path problem.
10. Write a program to implement the Rabin- Karp algorithm.
11. Write a program to implement the Boyer Moore algorithm.

B Tech 8th Semester (Information Technology)
IT-402 Statistical Models for Computer Science

L	T	P
3	1	

1. **Introduction**

Probability Models, Sample Space, Events & their algebra, graphical methods of representing events, Probability Axioms and their applications, Conditional probability, Independence of Events, Bayes' Rule and Bernoulli Trials[1]

2. **Random Variables**

Random variables, and their event spaces, Probability mass function, Distribution functions, some discrete distributions (Bernoulli, Binomial, Geometric, Negative Binomial, Poisson, Hypergeometric and Uniform), Probability Generating Function, Discrete random vectors, Continuous random variables: some continuous distributions (Exponential, Hyper exponential, Erlang, Gamma, Normal), Functions of random variables, jointly distributed random variables. [1]

3. **Expectation**

Introduction, Moments, Expectation of functions of more than one random variable, Brief introduction to Conditional pmf, pdf and expectation, Moments and transforms of some distributions (Uniform, Bernoulli, Binomial, Geometric, Poisson, Exponential, Gamma, Normal), Computation of mean time to failure.[1]

4. **Stochastic Processes**

Classification of stochastic processes, The Bernoulli process, The Poisson process, renewal process, renewal model of program behaviour. [1]

5. **Markov Chains**

Computation of n-step transition probabilities, State classification and limiting distributions, Distribution of times between state changes, Irreducible finite chains with aperiodic states, M/G/1 queuing system, Discrete parameter Birth-Death processes, Analysis of program execution time, Continuous parameter Markov Chains, Birth-Death process with special cases, Non-Birth-Death Processes. [1]

BOOKS

1. K.S. Trivedi, Probability, Statistics with Reliability, Queuing and Computer Science Applications, PHI, 2001.
2. J.F. Hayes, Modeling of Computer Communication Networks, Khanna Publishing, Delhi.
3. W. Feller, An Introduction to Probability Theory and its applications, 2 vols., Wiley Eastern, 1975.
4. L. Kleinrock, Queuing Systems, 2 vols, John Wiley, 1976.

B Tech 8th Semester (Information Technology)
IT-404 Advanced Networks

L	T	P
3	1	

1. Introduction to IPv6
Overview of IPv6, IPv6 & TCP/IP stack,IPv6 protocol architecture, IPv6 address basics, address notation, unicast address, multicast address , anycast address, IPv6 headers, Routing table problem, static & automatic address configuration, neighbor discovery, stateless address auto configuration, packet filter considerations, IPv6 addresses in the DNS, enabling IPv6 on the DNS server, forward & reverse zones on a primary & secondary servers.

2. Network services & Routing basics
Secure shell(Open SSH), NTP, SMTP, HTTP & HTTPS, NFS, TCP & UDP services, Unicast routing basics, ICMPv6 protocol, static dynamic routing with RIPng, RIPng protocol details, Router architecture strategies.

3. IPv6/IPv4 Interoperation & security issues
Interoperation concepts, Dual stack servers, Application level gateways, protocol translation, DHCPv6, interoperation problem, authentication and encryption, transport and tunnel mode,Inert key exchange protocol (IKE), open problems.

4. Mobile networks
Introduction to mobile IPv4, mobile IPv6, protocol overview of mobile IPv6, enhanced handover schemes, fast handover scheme, network mobility (NEMO), hierarchal mobile IPv6, security in mobile IP, VPN problems & solutions, NSIS firewall, bidirectional tunneling & route optimization

BOOKS:

1. Benedikt Stockebrand, IPv6 in Practice a Unixer's Guide to the Next Generation Internet, Springer Berlin Heidelberg 2007.
2. Youngsong Mun and Hyewon Lee, Understanding IPv6, Springer US 2005.
3. W.Stallings, Cryptography and Network security: Principles and Practice, 2nd Edition. Prentice Hall, 1998.

B. Tech 8th Semester (Information Technology)

IT-422 Distributed Operating System

L	T	P
3	1	

Unit-1: Architecture of distributed O.S.: Introduction, motivation, system architecture type, issues in distributed O.S., Communication primitive.

Unit-2: Distributed mutual Inclusion: Introduction, classification preliminaries simple solution, non token based algorithm, Lamport algorithm, Ricart algorithm, Mackawa's algorithm, A generalized non token based algorithm., token based algorithm, Broad cast algorithm, Heuristic algorithm, tree based algorithm, comparative performance analysis.

Unit-3: Distributed dead lock detection: Introduction, dead lock handling strategies, issues in deadlock detection & resolution, Control organization, centralized, distributed & hierarchical detection algorithm.

Unit-4: Distributed file system: Introduction, architecture mechanism for building, design issues, log structured file system.

Unit-5: Distributed Scheduling: Introduction, motivation, issues in load distribution, component of load algorithm, stabilizing load distribution algorithm, performance comparison, selection of a suitable load sharing algorithm, requirement for load distribution, task migration, issues in task migration.

BOOKS:

1. Mukesh Singhal & N.G. Shivaratri, Advanced concepts in operating systems, TMH 2001.

2. A.S Tanenbumn, Modern operating systems, PHI.

3. A. Silberschatz, P.Galvin, G.Gagne, Applied operating system concepts, Wiley

B Tech 8th Semester (Information Technology)

IT-424 E-Commerce

L	T	P
3	1	

1. Introduction & Network Infrastructure of E-Commerce

E-commerce framework, E-Commerce & media convergence, Anatomy of E-Commerce applications, E-Commerce Consumer & Organizational Applications. Market forces influencing i-way, Components of i-way, Network access equipment, Global information distribution networks, Public issues shaping the i-way.

2. E-Commerce & World Wide Web and Consumer oriented E-Commerce

Architectural framework for Electronic Commerce, WWW as the Architecture, Security and web, Consumer oriented Applications, Mercantile Process Models, Mercantile Models from Consumer Perspective.

3. Electronic Payment Systems and interorganizational Commerce& EDI

Types of Electronic Payment System, Digital token based Electronic Payment Systems, Smart Cards and Electronic Payment Systems, Credit Card based Electronic Payment Systems, Risk and Electronic Payment System, Designing Electronic Payment System., EDI, EDI Applications in business, EDI: legal, security and privacy issues, EDI and Electronic Commerce.

4. Interorganizational E-Commerce and Consumer search and Resource Discovery

Internal information systems, Macro forces and Internal Commerce, Work-flow automation and coordination, customization and internal commerce, SCM, search and resource discovery paradigms, information search and retrieval, E-Commerce catalogs or directories, information filtering, Computer based training and Education, digital Copyrights and E-Commerce

BOOKS:

1. Kalakota R. & Whinston A.B. frontiers of Electronic Commerce, 2006, Pearson Education

2. Janice Reynolds, The Complete E-Commerce Book, 2/e, CMP Books, 2004

B. Tech 8th Semester (Information Technology)
IT-426 Artificial Intelligence

L	T	P
3	1	

Unit-1 : **Introduction**: Definition of AI, Evolution of Computing, History of AI, Classical, Romantic and Modern period, subject area, Architecture of AI machines, logic family, Classification of logic.

Unit-2: **Production System**: Production rules, the working memory, Recognize-act cycle, conflict resolution strategies, refractoriness, Recency, specificity, alternative approach for conflict resolution by Meta rules, Architecture of production system.

Unit-3: **Propositional Logic**: Proposition, tautologies, Theorem proving, Semantic method of theorem proving, forward chaining, backward chaining, standard theorems, method of substitution, theorem proving using Wang's algorithm.

Unit-4: **Predicate Logic**: Alphabet of First order logic (FOL), predicate, well formed formula, clause form, algorithm for writing sentence into clause form, Unification of predicates, unification algorithm, resolution Robinson's inference rule, Scene interpretation using predicate logic.

Unit-5: **Logic Programming with Prolog**: Logic program, Horn clause, program for scene interpretation, unification of goals, SLD resolution, SLD tree, flow of satisfaction, controlling back tracking using CUT, common use of CUT, implementation of backtracking using stack, risk of using cuts, fail predicate, application of cut-fail combination, replacing cut-fail by not.

Unit-6: **Default and Non monotonic Logic**: Axiomatic theory, Monotonicity Vs Non-Monotonicity, non-atomic reasoning using McDermott's NML-I, problems with NML-I, reasoning with NML-II, Case study of Truth Maintenance System (TMS), Neural network fundamentals.

Unit-7: **Imprecision and Uncertainty**: Definition, Probabilistic techniques, Certainty factor based reasoning, conditional probability, medical diagnosis problem, Baye's Theorem and its limitations, Bayesian belief network, propagation of belief, Dempster-Shafer theory of uncertainty management, belief interval, Fuzzy relation, inverse Fuzzy relations, Fuzzy post inverse, Fuzzy inversion.

Unit-8: **Intelligent Search Technique**: Heuristic function, AND-OR graph, OR graph, Heuristic search, A* algorithm and examples.

BOOKS:

1. A. Konar, Artificial Intelligence and Soft Computing--Behavioral and Cognitive Modeling of Human Brain, CRC Press, USA.
2. E.Charniak and D. McDermott, Introduction to Artificial Intelligence, Addison Wesley Longman.
3. Elline and Rich, Artificial Intelligence, 2/e ,1992.
4. Rich and Knight, Artificial Intelligence, 2/e, 1992.

B. Tech 8th Semester (Information Technology)
IT-428 Embedded System

L	T	P
3	1	

1. Introduction
   Embedded Systems and Architectures. System integration, Hardware/Software Partitioning, Design Considerations and Trade-offs, Structural and behavioral descriptions.
2. Processors
   ARM and SHARC processors- processor and memory organization, data operations, flow of control, input and output devices and primitives, busy-wait I/O, interrupts, supervisor mode, exceptions, traps. Memories: Caches, MMUs and address translation, CPU Performance: pipelining, super scaling execution, caching, CPU power consumption.
3. **Interfaces and Communication Mediums**
   Bus protocols, DMA, system bus configurations, ARM Bus, SHARC Bus, Memory Devices- organization and types, I/O Devices-timers and counters, ADC and DACs, keyboards, LEDs, Displays and touch screens , Interfacing-memory and device interfacing. Designing with microprocessors.
4. **Programming an Embedded System**
   Program design patterns for embedded systems, data flow and control/data flow graphs, analysis and optimization of execution time, energy, power, and program size. Processes: multiple tasks and processes, context switching, Operating Systems: Process state and Scheduling, O.S. Structure, timing requirements on processes, interprocess communication and mechanisms.
5. **Examples and Case Studies.**

BOOKS:

1. W. Wolf, Computers as Components: Principles of Embedded Computer Systems Design, Morgan Kaufmann, 2000.
2. F. Vahid and T. D. Givargis, Embedded System Design : A Unified Hardware/Software Introduction, Wiley, 2002.

REFERENCE BOOKS:

1. S. Heath Embedded Systems Design, Butterworth-Heinemann, 2002.
2. J. Catsoulis, Designing Embedded Hardware, ORA, 2002.
3. J. J. Labrosse Embedded Systems Building Blocks, CMP Books, 1999.
4. G. De Micheli, R. Ernst and W. Wolf, Readings in Hardware/Software Codesign, Morgan Kaufmann, 2001.

B Tech 8th Semester (Information Technology)

IT-430 E-Governance

L	T	P
3	1	

1. Introduction
Overview, Evolution of E-Governance, Scope & Content, Present Global trends of Growth in E-Governance. [1]

2. E-Governance Models
Introduction, Models of Digital Governance, Evolution in E-Governance, Maturity Models, Characteristics of Maturity Levels, Key Focus Areas. [1]

3. E-Governance Infrastructure
Introduction to E-Governance Infrastructure, Stages in Evolution & Strategies for Success, E-readiness, Evolutionary Stages in E-Governance.[1]

4. Vision of E-Governance, E- Government Business Model, Trends & Practices: Indian and International Scenario. [1, 2]

BOOKS:

1. C.S.R Prabhu, E-Governance-Concepts and Case Studies, PHI, Aug 2005
2. G. David Garson, Public Information Technology & E-Governance-Managing Virtual State,1st Edition, Jones & Bartlett Publication.

B Tech 8th Semester (Information Technology)

IT-432 Natural Language Processing

L	T	P
3	1	

1. Introduction

Origin, imposition, representation, role of knowledge, use of prolog for Natural Language Processing (NLP), Finite State Transition Networks(FSTN), notation, representation and traversal of FSTN in Prolog, Finite State Transducers(FST), implementation in Prolog, limitation of SM.

2. Recursive and Augmented Transition Networks (RTN)

Modeling recursion, representation, traversal, implementation in Prolog, push down transducers, implementation, advantage and limitations of RTN, augmented transition networks.

3. Grammar and Parsing

Grammar as knowledge representation, words, rules, structures, representation in Prolog, sub categorization, definite clause grammars, classes of grammars and languages, top down and bottom up parsing, comparison strategies, BFS and DFS, storing intermediate results, ambiguity, determinism and lookahead.

4. Well formed Sub-string tables and Charts

Well formed substring tables, active charts, rules of chart parsing, initialization, rule invocation, house keeping, implementation of top down and bottom up chart parsers, search strategy, alternative rule invocation, implementing flexible control, efficiency.

5. Features and the Lexicon

Feature theoretic syntax, feature structures as graphs, feature structures in Prolog, subsumption and unification, the status o rules, implementing PATR in Prolog, chart parsing with feature-based grammars, representation of lexical knowledge, implementing a lexicon in Prolog, DAGs versus terms

6. Semantics

Compositionality, meaning as reference, translation to a meaning representatino language, computational semantics as feature instantiation, transitive verbs and quantification, ambiguity, preferences and timing, building semantic checking in to the grammar.

7. Question answering and Inference

Question answering, evaluating DBQ formulae, standard logical inference, implementing forwards inference in Prolog, the pathological nature of logical inference, primitives and canonical forms, classes and inheritance, plausible inference and defaults

BOOKS:

1. Gerald Gazdar and Chris Mellish, Natural Language Processing in Prolog, Addison Wesley.
2. Allen James, Natural Language Understanding, Benjamin Cummins
3. Briscoe, Edward J., Boguraev and Branimir K, Computation Lexicography for Natural Language Processing, Longman/Wiley.
4. Schwartz, Steven C, Applied Natural Language Processing, Petrocelli.
5. Winograd, Terry, Understanding Natural Language, Academic Press.

B Tech 8th Semester (Information Technology)

IT-434 Multimedia Techniques

L	T	P
3	1	

1. Introduction

Multimedia – Definitions. CD-ROM and the Multimedia Highway, Uses of Multimedia, Introduction to making multimedia – The Stages of project, the requirements to make good multimedia, Multimedia skills and training, Training opportunities in Multimedia. Motivation for multimedia usage, Frequency domain analysis, Application Domain & OOA etc.Multimedia-Hardware and Software: Multimedia Hardware – Macintosh and Windows production Platforms, Hardware peripherals – Connections, Memory and Storage devices, Media software – Basic tools, making instant multimedia, Multimedia software and Authoring tools, Production Standards.

2. Tools & Multimedia building blocks

Multimedia – making it work – multimedia building blocks – Text, Sound, Images, Animation and Video, Digitization of Audio and Video objects, Data Compression: Different Compression algorithms concern to text, audio, video and images etc., Working Exposure on Tools like Dream Weaver, 3D Effects, Flash Etc.,

3. Multimedia and the Internet

History, Internet working, Connections, Internet Services, The World Wide Web, Tools for the WWW – Web Servers, Web Browsers, Web page makers and editors, Plug-Ins and Delivery Vehicles, HTML, VRML, Designing for the WWW – Working on the Web, Multimedia Applications – Media Communication, Media Consumption, Media Entertainment, Media games.

4. Multimedia Current Developments

Multimedia-looking towards Future: Digital Communication and New Media, Interactive Television, Digital Broadcasting, Digital Radio, Multimedia Conferencing,

Assembling and delivering a project-planning and costing, Designing and Producing, content and talent, Delivering, CD-ROM technology.

BOOKS:

1. Steve Heath, Multimedia & Communication Systems, Focal Press, UK, 1999.
2. Tay Vaughan, Multimedia: Making it work, TMH, 1999.
3. K.Andleigh and K.Thakkar, Multimedia System Design, PHI, PTR, 2000.

B Tech 8th Semester (Information Technology)

IT-412 Advanced Pr II

L	T	P
		2

1. Create a calculator that can be used for adding subtracting multiplication and division.
2. Write an application to use WMI to retrieve information about your pc.
3. Write an application to create a File & Folder Browser.
4. Write a program in VB.NET to send an E-Mail via SMTP.
5. Write a program to create a MDI web browser.
6. Write an application to access the registry in VB.NET.
7. Write a program to retrieve a web page source.
8. Create a slot machine game using standard controls & random number generator.
9. Write a program to create a word processor.
10. Write a program for encryption & decryption.
11. Write an application to capture screen.
12. Create a drawing application in VB.NET.
13. Write an application in VB.NET to play MP3 files.

Item No.5: To consider and approve minor changes in the Scheme and Syllabi of some courses in B.Tech Computer Engg.

The Board of Studies of the Computer Engineering Department has approved minor changes in the Scheme and Syllabi of some courses of B. Tech. Computer Engg. The minutes of the Board of Studies conveyed to Academic Section vide No. CO/2009 dated 28.4.2009 alongwith changes proposed in the Scheme and Syllabi of some courses of B.Tech Computer Engg. are enclosed as Appendix 5 from page 71 to 87.

The SCSA may kindly consider and approve the same.

Appendix-5

Bachelor of Technology (Computer Engineering)
Scheme of Courses/Examination
(5^{th} SEMESTER)
(w.e.f. July 2009)

Sl. No.	Course No.	Subject	Teaching Schedule L	T	P/D	Tot	Examination Schedule (Marks) Th	Sess	P/V/V	Tot	Duration of Exam (Hours)	Credits
1	[illegible]	Database Management	3	1	-	4	60	40	-	100	3	3.5
2	COT-[illegible]	Design and Analysis of Algorithms	4	1	-	5	60	40	-	100	3	4.5
3	COT-[illegible]	Database Systems	3	2	-	5	60	40	-	100	3	4.5
4	COT-[illegible]	Analog and Digital Communication	4	1	-	[illegible]	60	40	-	100	3	4.0
5	COT-[illegible]	Automata Theory	4	2	-	6	60	40	-	100	3	4.5
6	COT-[illegible]	Algorithm Design (Pr)	-	-	3	3	-	60	40	100	3	5.0
7	COT-[illegible]	Database Systems (Pr)	-	-	3	3	-	60	40	100	3	1.5
8	COT-[illegible]	Software Testing (Pr)	-	-	2	2	-	60	40	100	3	1.5
9	COT-[illegible]	Seminar	-	-	2	2	-	-	-	100	-	1.0
10	COT-[illegible]	Training Viva	-	-	-	-	-	-	-	100	-	1.0
		Total	19	6	8	33				1000		29.5

Bachelor of Technology (Computer Engineering)
Scheme of Courses/Examination
(6^{th} SEMESTER)

Sl. No.	Course No.	Subject	Teaching Schedule L	T	P/D	Tot	Examination Schedule (Marks) Th	Sess	P/V/V	Tot	Duration of Exam (Hours)	Credits
1		Departmental Elective I	3	2	-	5	60	40	-	100	3	4.0
2	COT-302	Operating Systems	4	2	-	6	60	40	-	100	3	5.0
3	COT-304	Computer Hardware Technologies	4	1	-	5	60	40	-	100	3	4.5
4	COT-306	Computer Networks	4	1	-	5	60	40	-	100	3	4.5
5	COT-308	Advanced Computer Architecture	4	1	-	5	60	40	-	100	3	4.5
6	COT-312	Operating Systems (Pr)	-	-	3	3	-	60	40	100	3	1.5
7	COT-314	Computer Hardware & Troubleshooting Lab (Pr)	-	-	3	3	-	60	40	100	3	1.5
8	COT-316	Advanced Technologies (Pr)	-	-	3	3	-	60	40	100	3	1.5
		Total	19	5	9	35				800		27

NOTE: Students of all branches will undergo a practical training of 6 weeks duration after the 6^{th} Semester exam.

Departmental Elective I
1 COT-340 Digital Signal Processing
2 COT-342 Multimedia Techniques
3 COT-344 Graph Theory & Combinatorics
4 COT-346 Advanced Database Systems
5 COT-348 Craft of Programming
6 COT-350 Computer Graphics
7 COT-352 Software Quality and Reliability

Data Structures
COT-203

Note: Implementations are in 'C' Language.

1. Introduction:
Fundamentals of pointers in C, pointer declaration, passing pointer to functions, pointers and arrays, dynamic memory allocation, Definition of Algorithm, Data Abstraction, Performance Analysis & Measurement, Files and related operations in C.

2. Searching and Sorting Techniques
Searching techniques: Linear and Binary, Sorting techniques: Selection, Bubble, Insertion, Merge sort, Quicksort, List and Table Sorting.

3. Simple Data Structures
Arrays: Definition of array, Array storage, sparse arrays: Transpose, addition, and multiplication of sparse matrices, Stacks and Queues and their applications, expression evaluation, A maziog problem, multiple stacks and queues in an array.

4. Linked Data Structures
Linked Lists: definition, allocation for stacks and queues. Examples of linked lists, polynomial addition, comparison of sequential and linked allocation of storage; inversion, concatenation & copying of the lists. Implementations in C language.
Doubly Linked List: Definition of circular and doubly linked list, header node, insertion and deletion, sparse matrix, representation using doubly linked lists. Examples for application of doubly linked lists; dynamic storage management; node structures, routines for allocation and deallocation, generalized lists and recursive algorithms for copying and comparison of lists.

5. Advanced Data Structures
Trees, Basic concepts and definitions of a tree and binary tree and associated terminology, Binary tree traversal techniques, Binary tree representation of trees, transformation of trees into binary trees, some more operations on binary trees, Binary Search Trees, Heaps and heapsort, Threaded binary trees. Graphs: Representation of graphs and their traversal, Minimum cost Spanning Trees.

BOOKS

1. E Horowitz and S. Sahni: Fundamentals of Data Structures in C, Second Edition, Universities Press, Hyderabad.
2. R.B. Patel: Expert Data Structures in C, Khanna Publishers, 2001.
3. R.L. Kruse: Data Structures & Program Design in C, PHI.
4. D.F. Knuth: The art of Computer Programming Vol I, Narosa Publications, 1985.
5. Byron S. Gottfried & J.K. Chhabra: Theory and Problems of Programming with C Language, Schaum Series, TMH, 2005.

Design and Analysis of Algorithms
COT-301

1. Introduction
Review of elementary data structures, analyzing algorithms, asymptotic notation, recurrence relations, Hash tables, Binary search trees, Convex Hull problem.
2. Sorting and Order Statistics,
Heapsort, Priority queues, Quicksort, Sorting in linear time.
2. Advanced Design and Analysis Techniques
Dynamic programming – Elements, Matrix-chain multiplication, longest common subsequence, Travelling Salesperson problem, Greedy algorithms – Elements, activity-selection problem, Huffman codes, task scheduling problem, Knapsack Problem, Backtracking – Elements, 8 – Queens, Graph Coloring, Hamiltonian Cycles.
3. Advanced Data Structures
Operations in B-Trees, Binomial heaps, Fibonacci heaps, data structures for disjoint sets, strings.
4. Graph Algorithms
Review of graph algorithms, topological sort, strongly connected components, minimum spanning trees – Kruskal and Prim's, Single source shortest paths, relaxation, Dijkstra's algorithm, Bellman-Ford algorithm, single source shortest paths for directed acyclic graphs.
5. NP – Hard & NP – Complete problems
Basic concepts, Clique Decision problem, Node Cover decision problem, Travelling Salesperson decision problem, Introduction to approximation algorithms Planer Graph Coloring, Maximum programs stored problem.

BOOKS

1. Cormen, Leiserson and Rivest: Introduction to Algorithms, 2/e, PHI.
2. Horowitz, Sahni, and Rajasekaran: Fundamentals of Computer Algorithms, Second Edition, Universities Press, Hyderabad.
3. Aho, Hopcroft, and Ullman: The Design and Analysis of Computer Algorithms, Addison Wesley.

Computer Networks
CCT-306

L	T	P
4	1	-

1. Introduction
Network Functions, Network Topology, Network Services, Switching Approaches, Transmission media and systems, multiplexing and signaling techniques, Error detection and correction, Internet checksum algorithm.

2. Layered Architectures
Examples, OSI Reference Model, Overview of TCP/IP architecture, Socket system calls, SNMP, Electronic Mail.

3. Peer-to-Peer Protocols
Protocols, Service Models and End-to-End requirements, ARQ, Sliding Window Protocols, RTP, HDLC, PPP protocols, Statistical Multiplexing.

4. MAC and LAN Protocols
Multiple access communication, Random Access-ALOHA, Slotted-ALOHA, CSMA, CSMA-CD, LAN Standards – Ethernet, Fast Ethernet & Gigabit Ethernet, Bluetooth and WiMax standards.

5. Packet Switching Networks
Packet network topology, Datagrams and Virtual Circuits – Structure of Switch / Router, Connectionless and Virtual Circuit packet Switching, Traffic management and QoS – FIFO, Priority Queues, Fair Queuing, MPLS.

6. TCP/IP
Architecture, Internet protocols – IP packet, Addressing, Subnet addressing, IP routing, CIDR, ARP, RARP, ICMP, Reassembly, IPv6, UDP, Transmission Control Protocol – TCP, DHCP, Mobile IPv6, Internet Routing protocols, Multicast Routing.

BOOKS

1. Leon Garcia and Indra Widjaja: Communication Networks – Fundamental Concepts and Key Architectures, TMH, 2000.
2. A.S. Tanenbaum: Computer Networks, Fourth Edition, Pearson Education, 2003.
3. Forouzan: Data Communications and Networks, Fourth Edition, McGraw Hill, 2007.
4. William Stallings: Data and Computer Communications 5/e, PHI.

1. Define Ethernet, Token Ring, Token Bus, Aloha as user manual 1 of component 1.
2. Create a four connected LAN with four nodes in your lab and using traffic capture software measure throughput. Compare with simulated LAN of similar configuration and determine for what value of p-Persistent throughput remains unchanged in user manual 1 of component 2.
3. Define TCP/IP in user manual 1 of component 8.
4. Define Router in user manual 1 of component 5.
5. Simulate and ethernet LAN using 6 to 15 nodes, apply p-Persistent (1/6 to 1/15) and compare the performance in terms of throughout, probability of success and average attempts. Plot the following.
6. Average attempts Vs Normalized throughout
7. No of transmitting nodes Vs Probability of success
   a. No of transmitting nodes Vs Normalized throughput
   b. Refer page 257,263 and 281 of Computer Networks by Andrew S.
   c. Tanenbaum (4th Edition) in user manual 2 of component 1.
8. Simulate an ALOHA and Ethernet network for 6 to 15 nodes and compare performance in user manual 2 of component 1.
9. Simulate an Ethernet LAN using 6 to 15 nodes, change error rate (10^{-6} to 10^{-4}) and compare with throughput, end time, delay and response time in user manual 2of component 1.
10. Setup/Stimulate and Ethernet network of 6 to 15 nodes, for 1-Persistent, vary number of transmitting nodes and compare collision count, throughput, end time, delay and response time in user manual 2of component 1.
11. Stimulate a wireless network of 15 node and compare performance with Ethernet and Token ring in user manual 2 of component 1.
12. Stimulate a wireless network of 15 node and compare performance with Ethernet and Token ring in user manual 2 of component 3.
13. Compare working and performance difference between simple BSS and multiple BSS with transmitting node in wireless LAN by simulation or real time in user manual 2 of component 3.
14. Compare the performance of store and forward, cut through and fragment free switches in Ethernet protocol in user manual 2 of component 4.
15. Simulate a WAN network using TCP/IP protocol. Keep the error rate moderate (from 10^{-2} to 10^{-6}). Change the congestion algorithm then compare the network performance in user manual 2 of component 8.
16. Simulate an WAN network using Router. Change the routing protocol, and then compare the simulation time in user manual 2 of component 9.
17. Simulate an WAN network using Router. Change the scheduling technique, and then compare the Queuing delay for different prioritized packet in user manual 2 of component 10.

Object Oriented Programming
COT–202

L T P
3 1

1. Object Oriented Programming and Design
Review of Abstraction, Objects and other basics, Encapsulation, Information hiding, Method Signature, Classes and Instances, Polymorphism, Inheritance, Exceptions and Exception Handling with reference to object modeling, Object Oriented Design – Process, Exploration and Analysis.

2. C++ Programming Basics
Fundamentals: Variables and assignments, Input and Output, Data Types and Expressions, Flow of control, Subprograms: Top down design, Predefined functions, Programmer defined functions, Procedural abstractions, Local variables, Overloading function names, Parameter passing, Structures for diverse data, Structures as function arguments, Initializing structures, Defining classes and member functions, Public and private members ,Constructors for initializations, , Destructors, Copy constructors, Friend functions.

3. C++ Object Oriented Concepts
Objects and Classes: Operator overloading , Overloading the assignment operator ,subscript operator , this pointer ,Use of file for I/O, Formatting output with stream functions, Character I/O, Inheritance, constructors in inheritance , Standard C++ classes, Derived classes ,Virtual functions, virtual base class.

4. C++ Data Structures and Advanceef Topics
Arrays – Programming with arrays, arrays of classes, arrays as function arguments, Strings, Multidimensional arrays, Arrays of strings, Pointers, Dynamic arrays, Classes and dynamic arrays, Templates – generic classes and functions, namespaces, introduction to STL.

5. Introduction to Java
Data types, Variables and Assignment, String and Characters, Arrays, Control statements, Loops, Operators, Introduction to Classes, Constructors, this keyword, Static, Local and Instance variables, Methods, Method overloading, Method overriding, subclasses, inheritance, modifiers, polymorphism

BOOKS

1. Herb Schildt: C++ - The Complete Reference, TMH, Delhi
2. P. Venugopal :Mastering C++,TMH,Delhi
3. Bruce Eckel : Thinking in C++ Volume 1 ,Pearson Education,Delhi.
4. Horstmann: Computing Concepts with C++ Essentials, John Wiley.
5. Joseph O'Neil and Herb Schildt: Teach Yourself JAVA, TMH, Delhi.
6. Gary Cornell , Sun Microsystems: Core Java 2,Pearson Education, Delhi

Advanced Computer Architecture
CCIT-308

L T P
4 1 -

1. Introduction to Parallel Processing

Parallelism in uni-processor system, pipelining, basic assumptions, design techniques, designing pipelined data path, propagating an instruction queue through the pipeline, pipeline hazards and their detection, forwarding, instruction level parallelism, super-scalar architecture, general pipeline and reservation tables, principles of linear pipelining, instruction and arithmetic pipeline, principles of designing pipelined processor, micro-programming, general approach, micro-code engine, control store, branching and looping, horizontal and vertical micro-code scheme with example, alternative approach to micro-coding.

2. Issues in the Architecture of Distributed Systems

(a) Introduction, Examples, Distributed Systems versus Parallel Systems, Partial Orders, Models of Distributed Systems, Architectural Models, Fundamental Models, Interleaving Model, Happened Before Model, Potential Causality Model, Appropriate Model, Models Based on states, Deposet.

(b) Program correctness, Correctness criteria, Safety and Liveness properties, Correctness proofs, Predicate logic, Assertional reasoning, Well-Founded sets, Predicate Transformers.

(c) Concept of Logical Time, Logical Clock and its implementation, Limitations of Lamport's Logical Clock, Vector Clock and its implementation, Matrix Clock, and other optimal clocks, Using Induction to prove properties of Clocks, Verifying Clock Algorithms, Events, Process States, Clock Skew and Clock Drift, Synchronizing Physical Clocks, Cristian's Method, The Berkeley Algorithm, The Network Time Protocol, Distributed Debugging.

(d) Synchronization Problems, Mutual exclusion, Shared memory algorithms, Peterson and Lamport's Bakery Algorithm, Token passing algorithms, Suzuki-Kasami algorithm, Raymond's algorithm, Message passing algorithms, Lamport's algorithm, Ricart-Agrawala algorithm, Maekawa algorithm, Leader election, Garci-Molina Bully algorithm, Chang-Roberts unidirectional ring algorithm, Hirschberg-Sinclair bidirectional algorithm, Global States and Consistent Cuts, Chandi-Lamport and Lai-Yang Snapshot Algorithm, Global State Collection, Dijkstra-Scholten and other termination algorithms, Chandi-Misra-Hass and other deadlock detection algorithms.

(e) Fault tolerance, Agreement problems, Asynchronous Distributed Consensus, Impossibility (FLP) result and its proof, Consensus in Synchronous systems, Byzantine Generals Problem (BGP), Consensus with oral and signed messages, Failure detectors.

(f) Naming (Tanenbaum-Steen, Ch. 4), Transactions and Concurrency control (CDK, Ch. 12), Distributed Transaction (CDK, Ch. 13), Replication (CDK, Ch. 14)

BOOKS

1. Hwang and F.A.Briggs: Computer Architecture and Parallel Processing, McGraw Hill
2. Distributed Systems: Concepts and Design; G Coloouris, J Dollimore, T Kindberg 3/e Pearson Ed. 2002. (CDK)
3. Distributed Systems: Principles and Paradigm, Andrew S Tanenbaum, Maarten van Steen 3/e Pearson Ed. 2002.
4. Elements of Distributed Computing, VK Garg, Wiley-Interscience Publishers, 2002.

Database Systems
COT-303

1. Basic Concepts

What is database system, why database. Data independence, 3 levels of architecture: external level, conceptual level, internal level, mapping. DBA, DBMS, organization of databases, components of DBMS, Data Models, Relational Models, Networks data model, Hierarchical Model, semantic data model.

2. Relational Model

Introduction – Relational Model, base tables & views, relations, domains, candidate keys, primary key, alternate keys, foreign key, integrity rules, relational Operators – relational algebra, relational calculus, Data Base Design - Introduction, Basic Definitions, Non-loss decomposition and functional dependencies. 1NF, 2NF, 3NF, BCNF, MVD & 4NF, JD & 5NF, Normalization procedure, other normal forms.

3. Transaction Management

Transaction concept, transaction states, state diagram of a transaction, concurrent execution of transactions, conflict serializability, view serializability, recoverable schedule, cascadeless schedule, testing of serializabity.

4. Concurrency control

Lock based protocols, timestamp based protocols, and validation based protocols.

BOOKS

1. Database System Concept by Avi Silberchatz, Henry F. Korth and S. Sudarshan, Fifth Edition McGraw-Hill.
2. Fundamental of Database Systems by Ramez Elmasri, Shamkant B. Navathe, 5th Edition, Pearson Education.
3. Database Management Systems, by Raghu Ramakrishnan, 3rd edition, MGH.

Digital Electronics
CO/T-289

L T P
3 1 -

1. **Number Systems and Codes**
Introduction to positional number system, signed magnitude numbers, floating point numbers, binary arithmetic: addition, subtraction, multiplication and division. Base conversion, conversion formulae with examples, one's and two's complement arithmetic. Computer codes – BCD codes, gray codes, excess-3 codes, parity checks, Hamming and alphanumeric codes.

2. **Digital Logic Families**
Qualitative introduction to digital ICs, TTL, Schottky TTL, ECL, MOS Logic, CMOS Logic, Tri-state logic: Characteristics and properties.

3. **Combinational Logic Design**
Introduction, standard representations for logical functions, Karnaugh map representation, simplification of logical functions using K-map, minimization of logical functions specified in minterms/maxterms or Truth Table, minimization of logical functions not specified in minterms/maxterms, Don't care conditions, design examples, Ex-or and Ex-nor simplification of K-maps, five and six-variable K-maps, QM method, MEV method.

4. **Combinational Logic Design using MSI circuits**
Introduction, multiplexers and their use in combinational logic design, demultiplexers/decoders and their use in combinational logic design, adders and their use as subtractors, digital comparators, parity generators/checkers, code converters, priority encoders, 7-segment decoder/driver.

5. **Synchronous Sequential Circuits**
Introduction, FSM model, memory elements and their excitation functions. Synthesis of synchronous sequential circuits, capabilities and limitation of FSM, state equivalence and minimization, simplification of incompletely specified machines.

6. **Asynchronous Sequential Circuits**
Fundamental mode circuits synthesis, state assignment, pulse mode circuits.

BOOKS

1. R.P. Jain: Modern Digital Electronics, TMH.
2. Z Kohavi: Switching and Finite Automata Theory, TMH
3. M.M. Mano: Digital Logic Design, PHI.
4. Dr. B.R. Gupta: Digital Electronics, KATSON
5. James W. Bignell & Robert Donovan: Digital Electronics, CENGAGE LEARNING
6. Sanjay Kumar Bose: Digital Systems , NEW AGE INTERNATIONAL PUBLISHERS

Microprocessor I
COT-208

L T P -
3 1 -

1. 8086 Architecture
CPU architecture, internal operation, machine language instructions, instruction execution timing.
2. Assembly Language Programming
Assembler, instruction format, data transfer instructions, arithmetic instructions, branch instruction, NOP & HLT instructions, flag manipulation instruction, logical instruction, shift and rotate instruction, directives and operators.
3. Modular Programming
Stacks, Procedures, Basic Interrupt processing, Interrupt and interrupt routines, 8259A Programmable Interrupt Controller, macros – local labels and nested macros.
4. Strings and I/O Programming
String instructions, I/O consideration, programmed I/O block transfer and DMA.
5. I/O Interface
Serial communication, asynchronous, synchronous, physical, 8251A; Parallel communication: 8255 A, DMA controllers; maximum mode, 16-bit bus interface, 8279 Programmable keyboard/ Display interface, 8254 Programmable interval Timer, Interfacing to A/D and D/A converters, Stepper motor interfacing.

BOOKS

1. Liu and Gibson, Microcomputer Systems: 8086/8088 family: Architecture, Programming and Design, PHI.
2. D.V. Hall, Microprocessors and Interfacing, TMH.
3. A. K. Ray & K.M. Bhurchandi, Advanced Microprocessors and Peripherals: Architecture, Programming and interfacing, TMH.
4. Brey, The intel Microprocessor 8086/8088-Pentium: Architecture, Programming and interfacing , PHI
5. James L. Antonakos, The intel Microprocessor family H/W and S/W Principles and Applications, Cengage Learning

Microprocessors – I (Pr.)
COT-214

L	T	P
-	-	2

1. Write a program to print the alphabets.
2. Write a program to read a integer number of max (16 bit), store that number in a register and display it digit by digit.
3. Repeat exercise 2 for 32 bit number.
4. Write a program to find factorial of a number, where result does not exceed 32 bit. Use procedure to calculate factorial and pass parameters.
5. Write modular program to perform addition, subtraction, multiplication and division of two 16-bit numbers.
6. Repeat exercise 5 for two 32-bit numbers.
7. Sort n numbers using modular program.
8. Check whether a given string is palindrome or not.
9. Reverse an input string.
10. Merge two sorted list of integers.
11. Write a program to print the date of BIOS.
12. Write some programs, which use multiple data segments and multiple code segments. Do these programs by defining different segments in different files and link all of them to get the desired output.
13. Using INT 10h, change the size of cursor, change the position of the cursor based on user's choice.
14. Use INT 10h, change the mode of monitor and draw a single pixel in each color available in video mode 13.
15. Use INT 10h, draw a line in graphics mode.
16. Use INT 33h, write a program which turns on your mouse cursor and Pause the computer until a mouse button is pressed.
17. Use INT 33h, write a program to create a textual mouse "button".
18. Use INT 33h, write a program to check for the presence of a mouse driver.

Natural Language Processing
CSE 444

L T P
3 1 -

1. Introduction:
Language understanding- Phonetic and Phonological aspects of language, Morphological knowledge, Syntax- Semantics and Pragmatics, Articulatory Phonetics, Vocal Organs, Vowel, Syllable, Consonant, Phonetic Transcription, Phonological rules and Transducers

2. Grammar and Parsing :
Grammar and Sentence structure , Parsing with Context Free Grammar, Top down and bottom up parser, Transition Network Grammars, Morphological Processing , Earley algorithm, Semantic Networks for Knowledge Representation, Types of Semantic Networks.

3. Probabilistic (Statistical) Models of pronunciation:
Dealing with spelling errors, Part of speech Tagging, Bayesian method to spelling and pronunciation, Decision tree models, Computing Likelihood from weighted Automata: Forward Algorithm, Decoding: The Viterbi Algorithm, Probabilistic Context Free Grammars.

4. N-gram Language Models:
Simple N-grams, smoothing, Deleted Interpolation, N-grams for spelling and Pronunciation, Cross entropy for comparing Models, Use of language models in speech recognition, Architecture of Automatic Speech Recognition System

BOOKS:

1. Speech and Language Processing -By Daniel Jurafsky James H. Martin, Pearson Education.
2. Natural Language Understanding by James Allen, Pearson Education.
3. Spoken Language Processing by X. Huang, A. Acero, H.W. Hon , Prentice Hall New Jersey.

Discrete Structures
COT 207

L	T	P
3	2	-

1.Discrete Probability:

Introductory Examples, Basic definitions, Engineering applications of probability. Set theory, Sample space &events, Probability Multiplication principle, Product of sums principle, Cross product of Sample spaces, Theorem of Total Probability, Conditional Probability, Mutual Exclusion and Independent Events, Principle of Inclusion and Exclusion, Bayes' Rule.

2.Discrete Random Variable & Distributions:

Random variables and their event spaces, probability Mass functions, Distribution function, Discrete Uniform Distribution, Bernoulli Trial & Binomial distribution, Poisson distribution, Geometric distribution, Mean & Variance of random variables.

3.Relations and Algebraic systems:

Binary Relation and their properties, Equivalence Relations and partitions, Partial ordering Relations, Functions and Pigeonhole Principle, Propositions, Definitions and elementary properties of algebraic structures , semi groups, monoids and submonoids, groups, and subgroups, Homomorphism and Isomorphism of monoids and Groups, Definition and Examples of Rings and Subrings, Types of Rings, Commutative Ring, Integral Domain, Division Ring, Relation of Isomorphism in the set of rings, Field, its characteristics and subfield.

4.Graphs and Trees:

Introduction, Basic Terminology, Multigraphs and Weighted Graphs, Paths and Circuits, Shortest Paths in Weighted Graphs, Eulerian Paths and Circuits, Hamiltonian Paths and circuits, Planar Graphs, Trees, Rooted Trees, Path Lengths in Rooted Trees, Binary Search Trees, Spanning Trees and Cut-sets, Minimum spanning Trees.

BOOKS

1. C.L. Liu; Elements of Discrete Mathematics.
2. Discrete Mathematics for Computer Science, by Gary Haggard, J.Schlipf, S. Whitesides. Cengage Learning.
3. J.J.P. Tramblay; Discrete mathematical Structures with Applications to Computer Science, McGraw Hill, N.Y., 1977.

Statistical Models for Computer Science
CDT-405

L T P
3 1 -

1. Random Variables
Introduction . Engineering Applications to Random variables, Discrete random vectors, Probability density function (pdf), Cumulative Distribution functions (cdf), Probability Generating Function, Continuous random variables: some continuous distributions (Exponential, Hyperexponential, Erlang, Gamma, Normal). Functions of random variables, jointly distributed random variables

2. Expectation
Introduction, Moments, Expectation of functions of more than one random variable, Brief introduction to Conditional pmf, pdf and expectation, Moments and transforms of some distributions (Uniform, Bernoulli, Binomial, Geometric, Poisson, Exponential, Gamma, Normal), Computation of mean time to failure.

3. Stochastic Processes
Classification of stochastic processes, The Bernoulli process, The Poisson process, renewal process, renewal model of program behaviour.

4. Markov Chains
Computation of n-step transition probabilities, State classification and limiting distributions, Distribution of times between state changes, Irreducible finite chains with aperiodic states, M/G/1 queuing system, Discrete parameter Birth-Death processes, Analysis of program execution time, Continuous parameter Markov Chains, Birth-Death process with special cases, Non-Birth-Death Processes.

5. Estimation and Regression
Maximum likelihood estimation (MLE), Bayesian Estimation Techniques, Expectation Maximization, Linear Regression, Application of Regression in pattern recognition

BOOKS

1. K.S. Trivedi, Probability, Statistics with reliability, Queuing and Computer Science Applications, PHI, 2001
2. The Probability Tutoring Book (An intuitive Course for Engineers & scientists) by Carol Ash IEEE Press
3. A first course in Probability by Sheldon M. Ross Rs 350/-
4. Introduction to Probability Models by Sheldon M. Ross Rs 450/-
5. Statistics for the Engineering and Computer Sciences by William Mendenhall.

Web Engineering
CGT 402

L	T	P
3	1	-

1. Information Architecture
The Role of the Information Architect, Collaboration and Communication, Organizing Information, Organizational Challenges, Organizing Web Sites and Intranets, Designing Navigation Systems, Types of Navigation Systems, Integrated Navigation Elements, Remote Navigation Elements, Designing Elegant Navigation Systems, Grouping Content, Conceptual Design.

2. Dynamic HTML and Web Designing
HTML Basic Concepts, Good Web Design, Process of Web Publishing, Phases of Web Site development, Structure of HTML documents, HTML Elements – Core attributes, Language attributes, Core Events, Block Level Events, Text Level Events, Linking Basics, Linking in HTML, Images and Anchors, Anchor Attributes, Image Maps, Image Preliminaries, Images as Buttons, Introduction to Layout, Backgrounds, Colors and Text, Fonts, Layout with Tables, Advanced Layout: Frames and Layers, HTML and other media types, Audio Support in Browsers, Video Support, Other binary Formats, Style Sheets, Positioning with Style sheets, Basic Interactivity and HTML: FORMS, Form Control, New and emerging Form Elements.

3. CGI using PERL
Introduction to CGI, Alternative Technologies, The Hypertext Transport Protocol, URLs, HTTP, Browser Requests, Server Responses, Proxies, Content Negotiation, The Common Gateway Interface, The CGI Environment: Environment Variables, CGI Output, Forms and CGI, Sending Data to the Server,

4. Java Server Pages
Basics, Integrating Scripts in JSPs, JSP Objects and Components, configuring and troubleshooting, JSP: Request and response objects, Retrieving the contents of a an HTML form, Retrieving a Query String, Working with Beans, Cookies, Creating and Reading Cookies.

5. XML
Relationship between HTML, SGML and XML, Basic XML, Valid Documents, Ways to use XML, XML for Data Files, Embedding XML into HTML documents, Converting XML to HTML for DISPLAY, Displaying XML using CSS and XSL, Rewriting HTML as XML, The future of XML.

Note:- At least one question will be set from each unit.

BOOKS

1. Thomas A Powell, HTML The Complete Reference, Tata McGraw Hill Publications.
2. Scott Guelich, Shishir Gundavaram, Gunther Birznieks; CGI Programming with Perl 2/e, O'Reilly
3. Pardi, XML in Action, Web Technology, PHI.
4. Yung, XML Step by Step, PHI.

Software testing (Pr)
COT-315

L T P
- - 3

(A) Implement the following in C/C++

1. Develop a formula for the number of robustness test cases for a function of n variables.
2. Develop a formula for the number of robustness worst test cases for a function of n variables.
3. Find a cyclomatic complexity of a graph.
4. Study the development of decision table for the triangle problem.
5. Study the development of decision table for the next date function.
6. Develop a program for the data flow testing.
7. Develop the program for the white box testing.
8. Develop the boundary value analysis (test case) on triangle problem.
9. Develop the boundary value analysis (test case) on next date function.

(B) Developing a small project /tool to generate test data, to execute test data etc.

(C) Exposure to Automated CASE tool

Text book

1. Paul C. Jorgensen: Software testing--A Craftsman 's Approach, II Edition,CROC Press
2. Pankaj jalote :an integrated approach to software engineering, III Edition Narosa Publications
3. Art of software testing ,II Edition , john wiley publication,2004

Analog and Digital Communication
COT-341

L	T	P
4	1	-

1. **Spectral Analysis**
Fourier series. Response of linear system. Power spectral density. Fourier Transform. Convolution. Parseval's Theorem, correlation between waveforms, Impulse Function, ideal low pass filter, Hilbert transform, Pre-envelope.

6. **Random Variables & Noise**
Probability, Joint Probability, Random variables, Cumulative distribution function, Probability density function, Average value of random variables, Properties of rectangular Gaussian, Binomial Rayleigh & Poisson's distribution, Central Limit Theorem, Error function, Random processes, Ergodicity & Stationarity, Covariance, spectral densities, Noise and its sources, Methods of noise calculation in network and interconnected networks, Mathematical representation of random noise, Narrow band noise and its representation, Transmission of noise through linear systems, Noise figure to noise temperature, Computation of signals to noise ratio, Noise bandwidth.

3. **Analog Modulation Techniques**
Introduction, Amplitude Modulation, AM demodulation, Spectrum of AM signal, Double sideband suppressed carrier modulation, single side band modulation, Methods of generating SSB signals, vertical side band modulation, frequency division multiplexing; Angle modulation, Phase and frequency modulation, spectrum of F.M. signal bandwidth of FM signal; Effect of modulation index on bandwidth; NBFM & WBFM FM generation methods, FM Demodulation methods.

4. **Pulse Modulation**
Sampling theorem for low pass and band pass signals, time division multiplexing, concept of pulse amplitude modulation and pulse width modulation, demodulation of signals, pulse code modulation, Noise computation in PCM systems, Delta modulation and adaptive delta modulation.

5. **Digital Modulation Techniques**
Binary phase shift keying, differential phase shift keying, quadrature phase shift keying, M-ary PSK, QASK, Binary FSK, M-ary FSK, Minimum shift keying.

6. **Spread Spectrum Signals**
Spread spectrum model, direct sequence spread signals, generation of PN sequences, CDMA system based on frequency hopped spread spectrum signal.

BOOKS

1. Taub and Schilling: Principles of Communication System, TMH.
2. Simon Haykin: Digital Communication, John Wiley.
3. J. G. Proakis: Digital Communications, MGH.
4. G. Kennedy: Electronic Communication System, TMH.

Item No.6: **To consider and approve inclusion of list of open electives in the scheme of B. Tech 7th Semester Industrial Engineering & Management and Information Technology from the academic session 2009-2010.**

The open electives are to be offered to the students of Industrial Engineering and Management, and Information Technology in B.Tech 7th Semester from the academic session 2009-10. Therefore, there is a need to add the list of Open Elective-I in the scheme of B.Tech 7th Semester for the students of IEM and IT branches. The existing as well as the modified list of Open Elective-I are enclosed as Appendix 6 from page 89 to 90.

The SCSA may kindly consider and approve the list.

LIST OF OPEN ELECTIVE-I FOR VII SEMESTER

Sl	Course No.	Name of Subject	Remarks
1.	CET-419	Hydro Electric Power Development	Co, M, E
2.	CET-421	Concrete Technology	Open to all branches
3.	CET-423	Environmental Engg.	Open to all branches
4.	CET-425	Machine Foundations	Open to all branches
5.	CUT-471	Fundamentals of Software Engg.	Ec, M, E, C
6.	CUT-473	Fundamentals of Database Systems	Ec, M, E, C
7.	CUT-475	Fundamentals of Computer Hardware Technologies	Ec, M, E, C
8.	CUT-477	Artificial Intelligence	Open to all branches
9.	ET-461	Non-Conventional Energy Sources	Co, Ec, M, C
10.	ET-463	System Modeling and Control	Ec, M, E, C
11.	ET-465	Fault Tolerance and Reliability Engg.	Co, Ec, M, C
12.	ET-467	Illumination Engg.	Co, Ec, M, C
13.	ET-469	Microprocessors and Applications	Only for C and M
14.	ET-471	Transducers and Applications	Only for C and M
15.	ECT-431	e-Business	Co, Ec, E, C
16.	ECT-433	Radio and TV Engineering	Co, E, C
17.	ECT-435	Acoustic Engineering	Co, Ec, E, C
18.	ECT-437	Measurement Systems	E, C
19.	ECT-439	Communications Engg.	Co, E
20.	MET-427	Optimization Technique	Co, Ec, E, C
21.	MET-429	Renewable Energy Sources	Co, Ec, E, C
22.	MET-433	Industrial Noise and Control	Co, Ec, E, C
23.	MET-437	Maintenance Engg.	Co, Ec, E, C
24.	MET-439	Machine Tool Design	Co, Ec, E, C
25.	MET-477	Industrial Engg. & Organization	Co, Ec, E, C
26.	MET-443	Mechatronics Engg.	Co, Ec, E, C
27.	CHT-463	Metals and Alloys	
28.	HUT-461	Modern Trends in Management	
29.	HUT-463	Industrial Social Responsibility	
30.	HUT-467	Development and Planning in Indian Economy	
31.	HUT-475	Advance Communication Skills in English	
32.	MAT-467	Advanced Mathematics-I	
33.	PHT-465	Lasers	Co, Ec, M, E
34.	PHT-467	Ultrasonics	

LIST OF OPEN ELECTIVE-I FOR VII SEMESTER

Sr.	Course No.	Name of Subject	Remarks
1.	CET-419	Hydro Electric Power Development	Co, M, E, IT, IEM
2.	CET-421	Concrete Technology	Open to all branches
3.	CET-423	Environmental Engg.	Open to all branches
4.	CET-425	Machine Foundations	Open to all branches
5.	COT-471	Fundamentals of Software Engg.	Ec, M, E, C, IEM
6.	COT-473	Fundamentals of Database Systems	Ec, M, E, C, IEM
7.	COT-475	Fundamentals of Computer Hardware Technologies	Ec, M, E, C, IEM
8.	COT-477	Artificial Intelligence	Open to all branches
9.	ET-461	Non-Conventional Energy Sources	Co, Ec, M, C, IT, IEM
10.	ET-463	System Modeling and Control	Ec, M, E, C, IEM
11.	ET-465	Fault Tolerance and Reliability Engg.	Co, Ec, M, C, IT, IEM
12.	ET-467	Illumination Engg.	Co, Ec, M, C, IT, IEM
13.	ET-469	Microprocessors and Applications	Only for C, M, IEM
14.	ET-471	Transducers and Applications	Only for C, M, IEM
15.	ECT-431	e-Business	Co, Ec, E, C, IT
16.	ECT-433	Radio and TV Engineering	Co, E, C, IT
17.	ECT-435	Acoustic Engineering	Co, Ec, E, C, IT
18.	ECT-437	Measurement Systems	E, C
19.	ECT-439	Communications Engg.	Co, E, IT
20.	MET-427	Optimization Technique	Co, Ec, E, C, IT
21.	MET-429	Renewable Energy Sources	Co, Ec, E, C, IT
22.	MET-433	Industrial Noise and Control	Co, Ec, E, C, IT
23.	MET-437	Maintenance Engg.	Co, Ec, E, C, IT
24.	MET-439	Machine Tool Design	Co, Ec, E, C, IT
25.	MET-477	Industrial Engg. & Organization	Co, Ec, E, C, IT
26.	MET-443	Mechatronics Engg.	Co, Ec, E, C, IT
27.	CHT-463	Metals and Alloys	Open to all branches
28.	HUT-461	Modern Trends in Management	Open to all branches
29.	HUT-463	Industrial Social Responsibility	Open to all branches
30.	HUT-467	Development and Planning in Indian Economy	Open to all branches
31.	HUT-475	Advance Communication Skills in English	Open to all branches
32.	MAT-467	Advanced Mathematics-I	Open to all branches
33.	PHT-465	Lasers	Co, Ec, M, E, IT, IEM
34.	PHT-467	Ultrasonics	Open to all branches

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./2009/24th SCSA/ 7399 Dated: 18.08.2009
2nd

Minutes of the 24th SCSA meeting held on 13th August, 2009 at 5.00 PM in the Senate Hall of the Institute

The following were present:-

1.	Dr. M.N. Bandyopadhyay, Director	In Chair
2	Dr. Krishan Gopal, Dean (P&D)	
3.	Prof. R.K. Bansal, Dean (Academic)	
4.	Dr. T.K. Garg, Professor MED	
5.	Dr. S.P Jain, Dean (Students Welfare & TP)	
6	Dr. V.K. Arora, Professor CED	
7.	Dr. K.S. Kasana Chairman, MED	
8.	Dr. K.B Singh, Officiating Chairman, Hum & Social Scs. Deptt.	
8	Dr. K.S. Sandhu, Chairman, EED	
9	Dr. Baldev Setia, Chairman, CED	
10	Dr. Rajender Kumar, COE	
11.	Dr. S.K. Mahna, Chairman,Physics Deptt.	
12	Dr. R.S Bhatia, Chairman, Computer Applications Deptt	
14	Dr. D.P Singh, Chairman, Chemistry Department	
15	Dr. A.K Singh, Chairman, Computer Engg. Deptt	
16	Dr. R.K. Sharma, Chairman, ECE Deptt.	
17	Dr. Ashwani Jain, Professor, I/C Acad.Affairs.	
18	Dr. RPS Lohchab, Registrar &Secretary, SCSA	

The following decisions were taken:-

Item No.1: To consider the recommendations of the committee constituted by the Director to consider the representation of about 154 students of B.Tech.6th semester (Mech, Electronics &Communication Engineering, Information Technology and Industrial Engineering and Management branches) who are failing in the subject of HUT-311: Business Management

About 154 students of B.Tech. 6th Semester (Mech, Electronics & Communication Engineering, Information Technology and Industrial Engineering and Management branches) sent a representation to reconsider the result of B.Tech 6th Semester keeping in view their placement after 6th semester mentioning the reason that the paper in the subject HUT-311: Business Management in the end semester exam of B.Tech. 6th semester was very tough and due to that about 57% students could not clear the same.

The Director constituted a committee comprising of Dr. Rajender Kumar, Controller of Exams, Dr. P.J Philip, Chairman, Hum. & Social Scs Deptt. and Dean (Academic). The committee met on 8th August 2008 and recommended that 12 grace marks may be given to the B.Tech. 6th semester students who are failing in the HUT-311 Business Management.

The SCSA considered the recommendations of the above committee and approved the same.

Furthar, in view of consistently poor result of B.Tech 6th semester in the subject of Business Management, it was also decided that a committee be constituted by the Hon'ble Director and Chairman SCSA to review the scheme of B.Tech 5th/6th Semesters for suggesting any changes/modifications with regard to the subject of Business Management.

(R.P.S Lohchab)
Registrar & Secretary, SCSA

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

Dated: 08.08.2009

The Committee constituted by the Hon'ble Director to reconsider the result of B.Tech 6th Semester in the subject of HUT-311: Business Management met on 8th August, 2009. All members were present. The committee recommends that maximum 12 grace marks may be given to the B.Tech. 6th Semester students who are failing in the subject of HUT-311: Business Management.

(P.J.Philip)
Chairman, Hu&SS and
Business Admin. Deptt.

(Ravender Kumar)
Controller of Exams

(R.K.Bansal)
Dean (Academic)

To

Dr. R. Bansal

DEAN ACADMICS

NIT KURUKSHETRA

DATE: 30/07/09

Director
Kindly advise
30/7/09

SUBJECT: Reconsideration of BM results.

Respected Sir,

This is with regard to the Business Management paper in the 6th semester of the curriculum for mechanical, electronics and communication, IT and IEM branches. This is to inform you the paper that came in the end semester examination was very tough and due to that about 57% of the students haven't been able to clear the exam. This semester is very important in relation to placement of student. So, we request you to please reconsider the result.

Thanking you

Yours faithfully

Final Year

	Name	Sign
1)	Yatin Katyal	Katyal
2)	Aneesh Bansal	Aneesh
3)	Vivek Wadhwa	
4)	Prabudh Jain	Jain
5)	Nitin Arora	Arora
6)	Mayank	Mayank
7)	Puneet Yadav	Puneet
8)	Vipul Goyal	Goyal
9)	Anubhav Singh	Anubhav
10)	Sahil Khanna	Sahil
11)	Himanshu Goel	Goel
12)	Gaurav Garg	Gaurav
13)	Amit Hooda	Amit

14) Hitesh Mehan		
15) Sandeep Singhal		
16) Saamie Gupta		
17) Puneet Kumar		
18) Megha Sethi	Meghasethi	
19) Sameer Dada	Samdada	
20) Sahil Duneja	Sahil	
21) Anil Bindal	Anil Bindal	
22) Vinay kumar keetha		1352/06
23) Ankur Raina		1271/06
24) Neelkamal Biswas		1246/06
25) Vishal Bhaker		1377/06
26) Gaurav Garg		1615/06
27) Pankaj Kumar	Pankaj	1212/06
28) Gaurav Kumar	Gaurav	1283/06
29) Pradeep Kumar	Pradeep	1284/06
30) Satyendra Pratap		1285/06
31) RAHUL GOND		1536/06
32) Manish Sauka	Manish	1229/06
33) Vipul Gaba		1248/06
34) Vinod Kumar	Vinod Kumar	1425/06
35) Varun Mehla	Varun	1238/06
36) Jatin Sangwan		1383/06
37) VARUN GOEL	Varun	1381/06
38) Narender Kumar	Narender	1250/06
39) G. Krishna Reddy		1368/08
40) ROBIN JAIN	Robinjain	1394/06

Name	Roll	Sign
Dinesh Goel	1225/06	Goel
) Himanshu Gupta	1211/06	Gupta
) Jitendra Meena	1307/06	[illegible]
) Sanjay Tanwar	1304/06	Sanjay
5) Barinder Pal Singh	1277/06	[illegible]
) Mohit Kumar	1228/06	[illegible]
Ishaan Chaudhary	1216/06	[illegible]
8) P. R. KARTHIK	1276/06	Karthik
) Chirag Wadhwa	1323/06	[illegible]
0) Nitin Menon	1267/06	[illegible]
Shanker Bisanka	1261/06	Shanker
Gulshan Andevas	1429/06	[illegible]
) Satyam P	1206/06	Satyam
) K. Radhi	1205/06	Radhi
5) Goutham Varma . P	1351/06	[illegible]
) Anil Sharma	1423/06	Anil
) Yugank Chawla	1413/06	Yugank.
18) Rahul Dhabas	1561/06	[illegible]
(9) Jyoti Prakash	1518/06	Jyoti
10) KUMAR ANSHU	1106/06	Anshu
1) Naveen Kr Singhal	1548/06	Naveen
2) Arunav Khurana	1558/06	Arunav
3) Atul Anand	1564/06	[illegible]
) Manish Kumar	1324/06	[illegible]
) Davinder	1302/06	[illegible]
Raju Kumar	1295/06	R

3

1) Aapil Kumar (1397/06)

2) Kunwar Brijesh Yadav (1360/06)

3) Sunny Nagpal (1372/06)

4) Rahul Gahlot (1379/06)

5) Anchal Gupta (1358/06)

6) Bhaskar Maheshwari (1370/06)

7) Manish Kumar (1505/06)

8) Anshuman (1405/06)

9) Anup Kumar 1102/06

10) Radhe Krishnan 1354/06

11) PARDAN SARADHE-M 1378/06

12) Ankit Jain 1362/06

13) Varun Sangwan 1231/06

14) Hitendra Gupta 1101/06

15) Mathur Gael 1223/06

16) Bhupender Kumar 1257/06

17) Tarun Kumar 1366/06

Amit Kumar 1223/06

18) Kuldip Singh 1217/06

19) Sudhanshu Shekhar 1266/06

Ankit Khurana 1126/06

Anand Kumar 1435/06

20) Mangal Singh 1103/06

Arvind 1422/06

Anuj 102/05

Hemant 1434/06

Sumit Jindal	(1403/06)	[signature]
Kamal Kumar	(1486/06)	[signature]
Roshic Dhan	(1141/06)	[signature]
Allada Kartheek	(1340/06)	Kartheek
Badal Chaudhary	(1412/06)	Badal Chaudhary
Uday Purohit	(1415/06)	[signature]
Deepak Patwari	(1398/06)	Deepak
Karan Parmar	(1530/06)	[signature]
Himanshu Dhadda	(1388/06)	[signature]
Raja Sekhar	(1201/06)	[signature]
Preetam Gupta	(1364/06)	[signature]
55) P. Naga Harish	(1140/06)	P.N. Harish
Ankit Arora	(1345/06)	[signature]
Nishant Kumar	(1300/06)	[signature]
Ankur Sharma	(1531/06)	[signature]
16) Tapan	(1520/06	[signature]
Varun Ahuja	(1395/06	[signature]
Manish Dhall	(1525/06)	[signature]
Nilesh Kaushik	(1509/06)	[signature]
Amandeep Sharma	(1551/06)	Amandeep Sharma
Ankit Gupta	(1554/06)	[signature]
Vineet Goyal	(1119/06)	Vineet Goyal
Kaustubh Bansal	1134/06	Kaustubh
Prateek Bansal	1132/06	Prateek
Rajwinder Singh	1136/06	Rajwinder
Abhishek Sharma	1214/06	[signature]
Varun Batra	1235/06	V. Batra
8). Ashish	1244/06	Ashish
Nitin Bansal	1253/06	Nitin
Neelabh Pratap Singh	1371/06	NPS
Vikas Bishnoi	1254/06	[signature]
Rashwinder Bhatti	1256/06	Rashwinder

	SUPRIYA MATTOO	1523/06	
1	Apurva	1278/06	
2	Shreya Pant	1143/06	Shreyapant
	SNEHA DAS	1414/06	
	Megha Sethi	1233/06	Megha
	[illegible] Dohare	1151/06	
	Ketki Garg	1811/06	Ketki
	Dany Rajkhowa	1152/06	Dany
	Charu Sharma	1138/06	Charu
	Ambika	1280/06	
	Usha Meena	1159/06	
	Ishita Sharma	1210/06	Ishita Sharma
3	BISMITA MOHANTY	1139/06	Bismita
4	Jyoima Jindal	1127/06	Jyoima
	Ankita Suman	1292/06	Ankita
	Priyanka Sharma	1144/06	Priyanka
	Diksha Batra	1105/06	Diksha
	Shipali Jangra	1521/06	
	Nisha Meena	1306/06	Nisha
6	Ranju	1315/06	Ranju
7	Ranjanjali Jaiswal	1257/06	Ranjanjali
8	Vasundhara Pundhir	1319/06	Vasu
	Dimple Badiyal	1152/06	Badiyal
24	Saanya	1155/06	Aditya
25	Neha verma	1150/06	Neha
26	Nancy	1122/06	Nancy

27) Nishtha Jain	1551/06	Nishtha
28) Swati	1239/06	Swati
29) Astha Tiwari	1319/06	Astha
30) Nishtha	1616/06	Nishtha

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./2009/25th SCSA/ 7498 Dated: 21.8.2009
26

Minutes of the 25th SCSA meeting held on 19th August, 2009 at 4.30 PM in the Office of the Director of the Institute

The following were present:-

1.	Dr. M.N. Bandyopadhyay, Director	In Chair
2.	Prof. R.K. Bansal, Dean (Academic)	
3.	Dr. T.K. Garg, Professor MED	
4.	Dr. S.P Jain, Dean (Students Welfare & TP)	
5.	Dr. V.K. Arora, Professor CED	
6.	Dr. S.K Sharma, Dean (Estate, Const. & Elect. Mtc.)	
7.	Dr. K.S. Kasana Chairman, MED	
8.	Dr. K.B Singh, Chairman, Hum & Social Scs. Deptt.	
9.	Dr. Kuldeep Kumar, Chairman, Mathematics Deptt.	
8	Dr. K.S. Sandhu, Chairman, EED	
9	Dr. Baldev Setia, Chairman, CED	
10	Dr. Rajender Kumar, COE	
11.	Dr. S.K. Mahna, Chairman,Physics Deptt.	
12	Dr. R.S Bhatia, Chairman, Computer Applications Deptt	
13.	Dr. R.K. Sharma, Chairman, ECE Deptt.	
14.	Dr. D.P Singh, Chairman, Chemistry Department	
15.	Dr. Ashwani Jain, Professor,I/C Acad.Affairs	
17.	Dr. A.K Singh, Chairman, Computer Engg. Deptt	
18.	Sh. RPS Lohchab, Registrar &Secretary, SCSA	

The following decisions were taken:-

Item No.1: To consider the weightage of attendance in the sessionals of various subjects

The problem of mass absenteeism of the students has become quite serious. The matter was discussed at length in the SCSA meeting and it was decided that attendance be given some weightage in the sessional component of various theory and laboratory courses, with no minimum attendance requirement to appear in the end semester examinations. The following table with break-up of various sub-components and their respective weightages was approved to be adopted for continuous evaluation of students with effect from the even semester of session 2009-2010.

CONTINUOUS EVALUATION SUB-COMPONENTS AND WEIGHTAGE

	SUB-COMPONENT	WEIGHTAGE %
(a)	Theory Papers	
1.	Three Class Tests (Two best to be reckoned)	10+10=20
2.	Teacher's Assessment through viva-voce, Home Assignments, on the Spot tests, Short Quizzes etc.	10
3.	Class Attendance (L+T)*	10
4.	End Semester Examination	60
(b)	For Practicals	
1.	Mid Semester Evaluation (to be conducted in regular Practical Classes)	20
2.	Teacher's Assessment through viva-voce, short-quizzes, reports, Class work etc.	20
3.	Class Attendance*	20
4.	End Semester Examination	40
(c)	For Seminars, Projects, Training, Comprehensive viva and General Fitness evaluation, the weightage will be decided by Departmental Review/Academic Committees	

*Attendance weightage component is to be calculated by multiplying the weightage by the fraction of classes attended by student.

This decision will be placed in the next meeting of the Senate for approval for its implementation from the next semester i.e. Even Semester of session 2009-2010.

Item No.2: To consider and approve the Scheme and Syllabi of Master of Computer Applications 5th and 6th Semesters.

The SCSA considered and approved the Scheme and Syllabi of 5th and 6th semesters of MCA Degree Programme effective from the academic session 2009-2010.

The meeting ended with a vote of thanks to the Chair.

(R.P.S Lohchab)
Registrar and Secretary, SCSA

MCA – V SEMESTER

SCHEME AND SYLLABI
MASTER OF COMPUTER APPLICATIONS
NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA

Proposed (2007-2010)

SUBJECT CODE	COURSE TITLE	LECTURE hrs	LAB hrs	CREDITS
MCA-301	System Analysis and Design	4	0	4
MCA-303	Computer Graphics and Multimedia	4	0	4
	Elective- I*	4	0	4
	Elective – II#	4	0	4
MCA-305	Computer Graphics Lab	0	2	1
MCA-307	Major Project	0	6	4
MCA-309	Seminar	0	1	1
			Total Credits	22

List of Electives:

*Any one out of the following:

MCA 311 Compiler Design
MCA 313 Wireless and Mobile Computing

#Any one out of the following:

MCA 315 Bioinformatics
MCA 317 Enterprise Resource management

MCA - V SEMESTER

MCA-301 SYSTEM ANALYSIS AND DESIGN

L	T	P	Total	Credit 04
4	0	0	4	Duration of Exam- 03 hours

Project Management: Fundamentals, Responsibilities of Project Manager, Project Planning and Scheduling, Types of Project Organizations.

System Analysis: Approaches to System Development, Modeling System Requirements, Traditional and Object Oriented approach to Requirements, Role of System Analyst.

System Design: Design Phase Activities, Traditional and Object Oriented approach to Design, Designing of Databases, UI, System Interfaces, Controls and Security.

Current Trends in System Development.

Suggested References

1. John W.Satzinger, Robert B. Jackson and Shephon D.Burd: *System Analysis & Design*, 2nd Ed., Course Technology Ptr, 2006.
2. James P.Clements and Jack Gido: *Effective Project Management*, Thomson Learning, 2007.

MCA - V SEMESTER

MCA 303 COMPUTER GRAPHICS AND MULTIMEDIA

L T P Total
4 0 0 4

Credits 04
Duration of Exam- Three hours

Line Drawing: Geometry and line generation, Vector Generation, Bresenham's algorithms for line and Circle, Anti Aliasing, Character generation.

Graphic Primitives: Introduction, Display devices, Primitive Operations, Normalized Device Coordinates, Display file - Interpreter, Structure, Algorithms, Display Control, Text, Line style primitive.

Polygons: Representation, Interfacing Algorithms, Filling.

2D Transformations: Scaling, Rotation, Translation, Homogenous coordinates, Coordinate Transformations, Rotation about arbitrary point, Other types of transformations.

Windowing and Clipping: Viewing transformations, Line and Polygon clipping algorithms, Generalized clipping, multiple windowing.

3-D Graphics: Transformations, Rotation about an arbitrary axes, projections ,Hidden surface and line: Back face removal and algorithms, Z- buffers, scan line algorithm, Painters Algorithm, Comparison Techniques, Warnock's Algorithm, Franklin Algorithm, Illumination, shading algorithms.

Multimedia: Multimedia and Hypermedia, Overview of Multimedia software tools.

Suggested References

1. Steven Harrington: *Computer Graphics : A Programmer Approach*, TMH, 2nd Ed, 1990.
2. David F Rogers: *Procedural Elements for computer Graphics*, TMH, 2nd Ed, 2003.
3. Foley, Vandam, Feiner, Huges: *Computer Graphics: Principles and Practice*, PEA, 2nd Ed, 2004.
4. Newman, Sproull: *Principles of Interactive Computer Graphics*, MCG, 2nd Ed ,1973.
5. Donad Hearn, Pauline Baker: *Computer Graphics: 'C' Version*, PEA, 2nd Ed, 2004.

MCA - V SEMESTER

MCA -311 COMPILER DESIGN

L	T	P	Total
4	0	0	4

Credits-4
Duration of Exam- Three hours

Compiler Structure: Analysis-synthesis model of compilation, Various phases of a compiler, Lexical, Syntax & Syntactic analysis.

Run time system: Storage Organization, Activation Tree, Activation Record, Parameter Passing, Symbol Table, Dynamic Storage Allocation.

Intermediate Code Generation: Intermediate Representations, Translation of Declarations, Assignments, Control Flow, Boolean Expressions and Procedure Calls. Implementation Issues.

Code Generation and Instruction selection: Object programs, Problems in Code Generation, a machine model, a Simple Code Generator, Register Allocation and Assignment, Code Generation from DAGs, Peephole Optimization

Suggested References

1. A.H. Aho and J.D. Ullman: *Principles of Compiler Design*, Addison Wesley,1974.
2. J. Donovan: *System Programming*, TMH, 1972.
3. D.M. Dhamdhere: *Compiler Construction- Principles and Practice*, McMillan India., 2001.
4. David Gries: *Compiler Construction for Digital Computer*, John Wiley & Sons, 1971.
5. Wilhelm and Maurer: *Compiler Design*, Addison-Wesley, 1995.

MCA - V SEMESTER

MCA-313 WIRELESS AND MOBILE COMPUTING

L	T	P	Total
4	0	0	4

Credits-4
Duration of Exam- Three hours

Introduction: Challenges in Mobile Computing, Coping with uncertainties, Resource poorness, Cellular architecture, Mobility Management.

(Wireless) Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA.

Publishing & Accessing Data in Air: Pull and push based data delivery models, Data dissemination by broadcast, Broadcast disks, Directory service in air, Energy efficient indexing scheme for push based data delivery.

File System Support for Mobility: Distributed file sharing for mobility support, Coda and other storage manager for mobility support.

Ad hoc Network Routing Protocols: Ad hoc network routing protocols, Destination sequenced distance vector algorithm, Cluster based gateway switch routing, Global state routing, Fish-eye state routing, dynamic source routing, Ad hoc on-demand routing, Location aided routing, Zonal routing algorithm.

Mobile Transaction and Commerce: Models for mobile transaction, Kangaroo and Joey transactions, Team transaction, Recovery model for mobile transactions, Electronic payment and Protocols for mobile commerce.

Suggested References:

1. Jochen Schiller: *Mobile Communications*, Addison-Wesley, 2nd Ed, 2004.
2. Stojmenovic and Cacute: *Handbook of Wireless Networks and Mobile Computing*, Wiley, 2002.
3. Reza Behravanfar: *Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML*, Cambridge University Press, 2004.

MCA –V SEMESTER

MCA-315 BIOINFORMATICS

L	T	P	Total
4	0	0	4

Credits–4
Duration of Exam- Three hours

Introduction to Bioinformatics: Fundamentals of Bioinformatics systems modeling.

Computing Evolution: Phylogenetic Analysis Sequence-based taxonomy, Mathematical tools of proteins and nucleic acids, sequence-Function Relationships, Sequence Homology and Conserved Regions, Conserved DNA sequences.

Bioinformatics tools: Networks - WWW, CERN EMBnet; EMBL Database, SEQNET, GenBank, NLM., Sequence Databases and Sequence Analysis: genomic, cDNA EMBL database GenBank protein sequence, pattern recognition tools, Genome databases, Molecular graphics software and other packages.

Suggested References

1. Teresa K. Attwood, David J. Parry-Smith: *Introduction to Bioinformatics*, Longman Higher Education, 1999.
2. S. Eddy, A. Krogh, G. Mitchison, Richard Durbin: *Biological sequence analysis: probabilistic models of proteins and nucleic acids*, Cambridge University Press,1999.
3. Andreas Baxevanis, B.F.Francis Ouellette: *Bioinformatics: a practical guide to the analysis of genes and proteins*, John Wiley & Sons, Inc., 1998.
4. James D. Tisdall: *Beginning Perl for Bioinformatics*, O'Reilly & Associates,2001.
5. Michael S. Waterman: *Mathematical methods for DNA sequences*, CRC Press,1989.

MCA –V SEMESTER

MCA- 317 Enterprise Resource Planning

Credits-4

L	T	P	Total
4	0	0	4

Duration of Exam- Three hours

Enterprise Resources Planning: Introduction, Growth of ERP.

ERP and related technologies: Business Process Re- Engineering, Management Information System, Decision Support System, Executive Support System, OLAP, Supply Chain Management, Customer Relationship Management.

ERP Modules and Vendors: Finance, Production Planning, Control and Management, Sales and Distribution, Human Resources Management, Inventory Control System, Quality Management, ERP market.

ERP Implementation Life Cycle: Evaluation and selection of ERP package, Project planning and implementation, Team training and Testing, End User Training and Going Live, Post Evaluation and Maintenance.

ERP Case Studies: Post Implementation review of ERP package in manufacturing, Service and others Organizations.

Suggested References:

1. Alexis Leon: *Enterprise Resource Planning*, 2003.
2. V.K.Garg & N.K.Venkita Krishnan: *ERP Ware: ERP Implementation Framework*, 2003.

MCA – VI SEMESTER

SCHEME AND SYLLABI
MASTER OF COMPUTER APPLICATIONS
NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA

Proposed (2007-10)

SUBJECT CODE	COURSE TITLE	Time Duration	CREDITS
MCA-302A	Industrial Project*.	Full semester	24
		Total credits	24

* Project work shall be pursued for a minimum of 16 weeks.

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

No. Acad./2009/f26th SCSA/ Dated: 20.10.2009

Minutes of the 26th SCSA meeting held on 14th October, 2009 at 4.30 PM in the Office of the Director of the Institute

The following were present:-

1.	Dr. M.N. Bandyopadhyay, Director	In Chair
2.	Dr. Krishan Gopal, Dean (P&D)	
2	Prof. R.K. Bansal, Dean (Academic)	
3.	Dr. T.K. Garg, Professor MED	
4.	Dr. S.P Jain, Dean (Students Welfare & TP)	
5.	Dr. V.K. Arora, Professor CED	
6.	Dr. S.K Sharma, Dean (Estate, Const. & Elect. Mtc.)	
7.	Dr. Kuldeep Kumar, Chairman, Mathematics Deptt.	
8.	Dr. S.S Rattan, Chairman, MED	
9.	Dr. Baldev Setia, Chairman, CED	
10	Dr. Rajender Kumar, COE	
11.	Dr. (Ms) Lillie Dewan, Chairman, EED	
11.	Dr. B.K Kaushik, Chairman,Physics Deptt.	
12.	Dr. P.J Philip, Chairman, HuSS Deptt.	
13.	Dr. R.S Bhatia, Chairman, Computer Applications Deptt	
14.	Dr. R.K. Sharma, Chairman, ECE Deptt.	
15.	Dr. D.P Singh, Chairman, Chemistry Department	
16.	Dr. Ashwani Jain, Professor,I/C Acad.Affairs.	
17.	Dr. A.K Singh, Chairman, Computer Engg. Deptt	
18.	Sh. RPS Lohchab, Registrar & Secretary, SCSA	

The following decisions were taken:-

1. **To consider the report/recommendations of UMC committee relating to the award of punishment leading to disqualification for more than one semester and to review the cases on merit for candidates who have been awarded punishment for more than one semester, as desired by the Hon'ble Chairman, BOG.**

The SCSA considered the appeal from Ms Sakshi Bhan, Roll No. 05/04 an ex-student of this Institute for condoning her punishment involving disqualification for two semesters for re-appearing in the subject of COT-404, Compiler Design in B.Tech (Computer Science) on account of using unfair means in the final semester exam besides some other cases which relate to

the award of punishment for disqualification for two to three semesters. The SCSA decided that the punishment as awarded to B.Tech Final Year students, who have been disqualified for two to three semesters may be reduced from three to two semesters and two to one semester. As such the punishment now in case of following students stand modified as under:-

Sr. No.	Name	Roll No.	Semester of UMC	Subject of UMC	Decision of UMC Committee	Decision of SCSA
1	Sakshi Bhan	05/04	B.Tech. 8th Sem.	COT-404	Disqualified in the subject COT-404 for two semesters may appear in May 2010	Reduced the punishment from two to one semester may re-appear in the subject COT-404 in Nov,2009
2	Chirag	238/04	B.Tech. 6th Sem.	ET-308	Disqualified in the subject ET-308 for two semesters may appear in May 2010	Reduced the punishment from two to one semester may re-appear in the subject ET-308 in Nov,2009
3	Ajit Kumar Singh	26/03	B.Tech. 7th Sem.	COT-403	Disqualified in the subject COT-403 for two semesters may appear in May 2010	Reduced the punishment from two to one semester may re-appear in the subject COT-403 in Nov,2009

2. **To ratify the action taken by the Director and Chairman, SCSA & Senate on shifting the dates of Mid Semester Exam-II from 19th, 20th and 21st October, 2009 to 22nd, 23rd and 24th October, 2009 on account of Bhaiya Duj.**

The SCSA ratified the action taken by the Director and Chairman, SCSA & Senate on shifting the dates of Mid Semester Exam-II from 19th, 20th and 21st October, 2009 to 22nd, 23rd and 24th October, 2009 on account of Bhaiya Duj.

3. **To note the comments of Dr. Rajender Kumar, COE and Special Invitee on the minutes of the 24th SCSA meeting held on 13th August, 2009.**

The SCSA noted the comments of Dr. Rajender Kumar, COE and Special Invitee on the minutes of the 24th SCSA meeting held on 13th August, 2009 and decided that the last para of the minutes of the said meeting which is reproduced below, be deleted:

"Further, in view of consistently poor result of B.Tech 6th semester in the subjects of Business Management, it was also decided that a committee be constituted by the Hon;ble Director and Chairman SCSA to review the scheme of B.Tech 5th/6th Semester for suggesting any changes/modification with regard to the subject of Business Management.

4. **To consider the case of Mr. Sandeep Kumar for Ph.D registration in Civil Engg. Department.**

The SCSA considered the case of Mr. Sandeep Kumar for Ph.D registration in Civil Engg. Department and decided that this case be referred back to the DRC/BOS of the Civil Engg. Department for academic evaluation.

5. **Under any other Item** the request of B.Tech Students for changing the dates of Confluence 2010 was considered. The SCSA authorized the Director to change the dates of Confluence – 2010.

The meeting ended with a vote of thanks to the chair.

RMohekar 21/X/2009

Registrar and Secretary, SCSA.

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136 119

No. Acad /26th SCSA/2009 Dated: 8-10-2009

The 26th meeting of the Standing Committee on Senate Affairs will be held on 14th October, 2009 at 4.30 P.M in the office of the Director. The agenda of the meeting will be as under:-

1. To consider the report/recommendations of UMC committee relating to the award of punishment leading to disqualification for more than one semester and to review the cases on merit for candidates who have been awarded punishment for more than one semester,as desired by the Hon'ble Chairman, BOG.
2. To ratify the action taken by the Director and Chairman, SCSA & Senate on shifting the dates of Mid Semester Exam-II from 19th, 20th and 21st October, 2009 to 22nd, 23rd and 24th October, 2009 on account of Bhaiya Duj.
3. To note the comments of Dr. Rajender Kumar, COE and Special Invitee on the minutes of the 24th SCSA meeting held on 13th August, 2009.
4. To consider the case of Mr. Sandeep Kumar for Ph.D registration in Civil Engg. Department.

All members are requested to make it convenient to attend the same.

Registrar and Secretary, SCSA

Copy to

1. All Deans
2. Dr. T.K Garg, Professor, MED
3. Dr. V.K Arora, Professor, CED
4. Chairmen of C,E,M, ,Ph,HuSS, Ma, Business Admin. & Computer Application Deptts.
5. Chairmen of ECE, Chemistry & Computer Engg. Deptts. as Special Invitees
6. Controller of Exams as Special Invitee
7. Professor In-charge Academic Affairs as Special Invitee
8. DS to Director for kind information of the Director

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA

No. Exam./09/9 22-

Dated: 04.09.2009

UMC CASES

As per recommendations of the UMC committee meeting held on 28.07.2009 at 04:30 PM in the office of the Chairman, UMC committee, NIT, Kurukshetra, you are awarded the following punishment:-

Sr.No.	Name	Roll. No.	Semester of UMC	Subject of UMC	Decision
1	Lobsang Dargey	107495	B.Tech. 2ndth sem	COT-101	Disqualified in the subject COT-101 for three semesters, may appear in Dec 2010
2	Bali Ram Rupner	107558	B.Tech. 2ndth sem	COT-101	Disqualified in the subject COT-101 for two semesters, may appear in May 2010
3	Alok Bodh	107223	B.Tech. 4th sem	HUT-211	Disqualified in the subject HUT-211 for two semesters, may appear in May 2010
4	Vaibhav Gupta	107048	B.Tech. 4th sem	CET-208	Disqualified in the subject CET-208 for two semesters, may appear in May 2010
5	Chetan Kumar	107394	B.Tech. 4th sem	CET-208	Disqualified in the subject CET-208 for three semesters, may appear in Dec 2010
6	Souvik Sarkar	107205	B.Tech. 4th sem	MET-202	No disqualification. His answer sheet in the subject MET-202 may be got evaluated.
7	Asaseb	107277	B.Tech. 4th sem	MET-202	Disqualified in the subject MET-202 for three semesters, may appear in Dec 2010
8	Bheem Singh	108325	B.Tech. 2nd sem	CHT-106	Disqualified in the subject CHT-106 for two semesters, may appear in May 2010
9	Nishant Kumar	108575	B.Tech. 2nd sem	CHT-106	Disqualified in the subject CHT-106 for two semesters, may appear in May 2010

10	Khurram Shadab Iqbal	108327	B.Tech. 2nd sem	PHT-106	Disqualified in the subject PHT-106 for two semesters, may appear in May 2010
11	Abhishek arora	1436/06	B.Tech. 6th sem	MET-302	Disqualified in the subject MET-302 for two semesters, may appear in May 2010
12	Apurba Sinha	1823/06	B.Tech. 4th sem	CET-202	Disqualified in the subject CET-202 for one semester, may appear in Dec 2009
13	Indu Sirohi	224/05	B.Tech. 8th sem	ECT-410	Disqualified in the subject ECT-410 for one semester, may appear in Dec 2009
14	Sakshi Bhan	05/04	B.Tech. 8th sem	COT-404	Disqualified in the subject COT-404 for two semesters, may appear in May 2010
15	Chirag	238/04	B.Tech. 6th sem	ET-308	Disqualified in the subject ET-308 for two semesters, may appear in May 2010
16	Ajit Kumar Singh	26/03	B.Tech. 7th sem	COT-403	Disqualified in the subject COT-403 for two semesters, may appear in May 2010

Controller of Examinations

Copy to:

1. All Concerned Students.
2. Dean (Acad.)/DR (Acad.).
3. All Teaching Deptts.
4. Notice Boards.

II

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136 119

No. Dean(Acad.)/2009/ Dated: 23.9.2009

It is hereby notified that the dates of Mid Semester Exam-II have been shifted from 19th, 20th and 21st October, 2009 to 22nd, 23rd and 24th October, 2009 on account of Bhaiya Duj which falls on 19th October, 2009.

Dean (Academic) 23/9/09

All Chairmen of the Departments

All Notice Boards (Institute & Hostels)

Copy to: DS to Director for the kind information of the Director

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136 119

No. Dean(Acad.)/2009/ Dated: 22.9.2009

Sub: Change in Academic Calendar for shifting Mid Semester Exam-II dates

The Academic Section is in receipt of a representation from First Year MCA students for shifting the date of Mid Semester Exam.-II because most of the students have to go to their homes on account of Bhaiya Dooj on 19th October, 2009. Therefore, it is recommended that Mid Semester Exam.-II may be shifted to 22nd, 23rd and 24th October, 2009.

(R.K BANSAL)
Dean (Academic)

Director

In fact this needs approval of the SCSA. However this may be allowed if the remaining events in the AI calendar are not disturbed. Matter may be intimated to the SCSA in its next meeting

DIR

Dean (AM)

173

The Director,
NIT,
Kurukshetra.

Subject :- Extend the date of 2nd Sessional.
Dated :- 22nd of Sep 09

Respected Sir,

With due Respect we The students of mca Ist year are requesting you to extend the date for 2nd Sessionals as This is a festive Season and every wants to be at home. Kindly look into the matter as soon as possible.

We will highly obliged if you help us in the Concerned ~~matter~~ matter.

Thanking you

Yours faithfully
Mca First year.

NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

III

No. Acad./2009/24th SCSA/ 3329 Dated: 18.08.2009

Minutes of the 24th SCSA meeting held on 13th August, 2009 at 5.00 PM in the Senate Hall of the Institute

The following were present:-

1.	Dr. M.N. Bandyopadhyay, Director	In Chair
2.	Dr. Krishan Gopal, Dean (P&D)	
3.	Prof. R.K. Bansal, Dean (Academic)	
4.	Dr. T.K. Garg, Professor MED	
5.	Dr. S.P Jain, Dean (Students Welfare & TP)	
6.	Dr. V.K. Arora, Professor CED	
7.	Dr. K.S. Kasana Chairman, MED	
8.	Dr. K.B Singh, Officiating Chairman, Hum & Social Scs. Deptt.	
8.	Dr. K.S. Sandhu, Chairman, EED	
9.	Dr. Baldev Setia, Chairman, CED	
10.	Dr. Rajender Kumar, COE	
11.	Dr. S.K. Mahna, Chairman,Physics Deptt.	
12.	Dr. B.S Bhatia, Chairman, Computer Applications Deptt	
14.	Dr. D.P Singh, Chairman, Chemistry Department	
15.	Dr. A.K Singh, Chairman, Computer Engg. Deptt.	
16.	Dr. R.K. Sharma, Chairman, ECE Deptt.	
17.	Dr. Ashwani Jain, Professor,I/C Acad.Affairs.	
18.	Dr. RPS Lohchab, Registrar &Secretary, SCSA	

The following decisions were taken:-

Item No.1: To consider the recommendations of the committee constituted by the Director to consider the representation of about 154 students of B.Tech.6th semester (Mech, Electronics &Communication Engineering, Information Technology and Industrial Engineering and Management branches) who are failing in the subject of HUT-311: Business Management

About 154 students of B.Tech. 6th Semester (Mech, Electronics & Communication Engineering, Information Technology and Industrial Engineering and Management branches) sent a representation to reconsider the result of B.Tech 6th Semester keeping in view their placement after 6th semester mentioning the reason that the paper in the subject HUT-311: Business Management in the end semester exam of B.Tech. 6th semester was very tough and due to that about 57% students could not clear the same.

The Director constituted a committee comprising of Dr. Rajender Kumar, Controller of Exams, Dr. P.J. Philip, Chairman, Hum. & Social Scs Deptt. and Dean (Academic). The Committee met on 1st August 2009 and recommended that 12 grace marks may be given to the B.Tech 5th semester students who are failing in the HUT-311 Business Management.

The SCSA considered the recommendations of the above committee and approved the same.

Further, in view of consistently poor result of B.Tech 6th semester in the subject of Business Management, it was also decided that a committee be constituted by the Hon'ble Director and Chairman SCSA to review the scheme of B.Tech 5th/6th Semesters for suggesting any changes/modifications with regard to the subject of Business Management.

RPS Lohchab

(R.P.S Lohchab)
Registrar & Secretary, SCSA

No. HY41 833/09 / 215
2/9/2009

A This was not decided, although deliberated.

Registrar / Secretary, SCSA

IV

CIVIL ENGINEERING DEPARTMENT
NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA

No. CED/ 1569 Date: 07.10.2009

Subject: Agenda for SCSA.

Ref.: DRC meeting of the Dept. No. CED/DRC/09/ dated 21.08.2009 (minutes attached).

This has a reference to the application for Ph.D. registration of Mr. Sundeep Kumar (Item 3 Sr. No. 6). The candidate has applied to the Civil Engineering Department for Ph.D. registration. He holds a B.Tech. and M.Tech. in Agriculture Engineering with specialization in Soil and Water Engineering at the M.Tech. level.

Presently, he is employed as technical expert (regular basis) in the Non Farm Sector of Haryana State Co-operative Apex Ltd. and has 6 years experience after M.Tech.

The DRC in its meeting referred above had decided to send his case to SCSA as to clarify his case because of his two preceding degrees.

SCSA may kindly consider the case and advise.

CHAIRMAN
07.10.09

Dean (Acad)

D.S. (Acad)
8/10/09

CIVIL ENGINEERING DEPARTMENT
NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA

No.CED/DRC/09/

Dated: 28/7/09

Sub: Minutes of the meeting of Departmental Research Committee (DRC)

A meeting of the Departmental Research Committee (DRC) was held on 28.7.2009 at 4.30 p.m. in the Conference Room of the Department. Due to long deliberations on certain points and paucity of time, some issues were deferred for the second part of the same meeting which was then held on 31.7.2009 at 4.35 p.m. in the office of the Chairman. The following members were present:

1. Dr. Baldev Setia ... (In chair)
2. Dr. R.K. Bansal ... Member
3. Dr. V.K. Arora ... Member
4. Dr. V.K. Sehgal ... Member
5. Dr. Diwan Singh ... Member
6. Dr. S.K. Madan ... Member
7. Dr. HK Sharma ... Member
8. Dr. S.N. Sachdeva ... Member
9. Dr. Anupam Mittal ... Member
10. Dr. S.M. Gupta ... Member
11. Dr. S. Daswal ...Special Invitee (Invited during the presentation of Sh.S.K. Sharma being his perspective thesis Supervisor)

Following decisions were taken:

1. Pre-registration presentations were made by
   a) Sh. S.K. Sharma
   b) Sh. Anil Kumar
   c) Sh. Ajash Goel

   Presentations by Sh. S.K. Sharma and Sh. Ajash Goel were found to be satisfactory. (Reports attached on separate sheets)
   The decision on the presentation by Sh. Anil Kumar was kept reserved, pending decision on the eligibility of his candidature.

2. The pending Ph.D. cases were discussed and decided as under:-

   i) The case of Mr. Shakti Singh was discussed. Since Sh. Shakti Singh had not complied with the conditions laid down in our previous DRC meeting dated 9.1.2009, his candidature was dropped.

   ii) The request of Mr. Rahul Kumar for extension in the date for appearing in the comprehensive examination on medical ground was considered. It was decided to recommend the extension for appearing in comprehensive examination by six months from the previous last date.

iii) Mr. Rameshwar Dass Singhal was to be reminded for appearing in ~~comprehensive examination~~ Pre-Registration Seminar.

iv) Since Mr. Ajash Goel had presented his pre registration seminar, the case was considered in the relevant category.

3. The fresh Ph.D. cases were decided as under:-

Sr.No.	Name of candidate	Remarks
1	Rakesh Gupta	Eligible – Full time
2	Manveen	Eligible - Part time
3	Kashmir Dass	Eligible -Part time
4	Amit Goyal	Eligible - Part time
5	Deepak Kumar	Eligible – part time
6	Sundeep Kumar	Referred to SCSA
7	Niragi K. Deve	Ineligible [Below 55% marks in M.Tech)
8	Manish Kumar	Ineligible (Inappropriate Branch of Engg. Graduate Level)
9	Gaurav Rastogi	Ineligible (Insufficient time period betwee M.Tech and Ph.D application, being Part-time)

4. The Chairman informed the members about the number of Ph.D. registrations in the department. The academic performance report of the candidates (through Thesis Supervisor) was placed before the members. Those who have not submitted the status report were to be reminded to do the same at the earliest possible.

Dr. S. Deswal

Dr. S.M. Gupta

Dr. Anupam Mittal

Dr. S.N. Sachdeva

Dr. HK Sharma

Dr. S.K. Madan

Dr. Diwan Singh

Dr. V.K. Sehgal

Dr. V.K. Arora

Dr. R.K. Bansal

Dr. Baldev Setia

Under any other Item. V

To

The Director

NIT Kurukshetra

Subject : Request to reconsider dates for Confluence 2010.

Respected Sir

As per the academic schedule of session 2009-10 the dates for institute's national level cultural fest Confluence 2010 are 4th -7th March,2010. According to academic schedule mid-semester vacations are starting from 8th March , 2010. As our institute has students from all around the country, so this would affect participation and organization of the fest as many of the students will not be available .

With due respects to the magnanimity and importance of the event, it is requested that the event be held on 18th -21st February, 2010 .

It would be really kind of you to look into the matter as urgently as possible so that we can go ahead with our further preparations.

Thanking You

Yours faithfully

Nitin Arora

Secretary, Music & Dramatics Club

(On behalf of all Club secretaries)

Recommended. 9/10/09 (President Clubs)

Dean (Academic) to the meeting

9/10/09

Item 13.4 To consider the request of B.Tech 2006 batch students for revision of multiplication factor for calculation of percentage of marks

The students of B.Tech 2006 batch students have requested for revision of multiplication factor for calculation of percentage of marks. In their request, they have stated that the grading system was changed for 2006 batch but the multiplication factor was not revised accordingly. In support of their request, the students have mentioned that lower multiplication factor leads to a lower aggregate percentage which causes problems in placements as well as in the matter relating to pursuing higher studies. The table showing modified grade based evaluation system as applicable w.e.f. session 2006-07 is given below.

Modification in Grade Based Evaluation System w.e.f. Session 2006-07

S. No.	Existing			Modified		
	Marks obtained and Grade	Category	Grade points	Marks obtained and Grade	Category	Grade points
1	$75 \leq A \leq 100$	Excellent	10	$85 \leq A' \leq 100$	Excellent	10
2	$65 \leq B < 75$	Good	8	$75 \leq A < 85$	Very Good	9
3	$50 \leq C < 65$	Fair	6	$65 \leq B < 75$	Good	8
4	$40 \leq D < 50$	Poor	4	$50 \leq C < 65$	Average	6
5	$E < 40$	Fail	2	$40 \leq D < 50$	Pass	4
6	-	-	-	$E < 40$	Required to Improve	2
The percentage of marks obtained by a student if so required, can be calculated as = CGPA multiplied by 9.00						

The request of students along with list of signatures is enclosed as Appendix 13.4 from page 182 to 192.

The Senate may consider and decide.

To

The Director

NIT Kurukshetra

Dear Sir

Subject: Revision of multiplying factor for CGPA.

The grading system was changed for the 2K6 batch. However, the multiplying factor was not revised accordingly. A lower multiplying factor leads to a lower aggregate percentage which causes problems in placements of many students and at the same time, is a major drawback for students pursuing higher studies.

We therefore request you to ..indly consider the revision of multiplying factor in the interest of the students at the earliest.

Attached herewith are the signatures of students of 2K6 batch requesting the same.

Thanking you

Yours sincerely

Students of 2006-10 batch

Request for Revision of Multiplying Factor

Electrical Department
E-I

S.No.	Roll No.	Name	Signature
1	1215	Satendra Kumar Dubey	
2	1220	Shashank Bhardwaj	
3	1221	Vikram Pratap	
4	1262	Lokesh Gupta	
5	1269	R K Ananth Narayan	
6	1270	Joshi Abhishek Onkar	
7	1280	Rohit Kumar Pandey	
8	1281	Sandip Hazarika	
9	1282	Amardeep Kumar Gupta	
10	1287	Rakesh Kumar Gautam	
11	1289	Akshat Kanchan	
12	1296	Pushpa Yadav	
13	1299	Gagan Deep Singh	
14	1301	Soumya Ranjan Sethy	
15	1303	Shreya Kumar	
16	1309	Hage Bilu	
17	1312	Kumbhare V.Hemant Kumar	
18	1313	Amaresh Kumar	
19	1314	Khrieko Sato	
20	1317	Hril Thang Kung Buhril	
21	1507	Gaurav Kumar Singh	
22	240	Saied Muleeda	

Request for Revision of Multiplying Factor

Electrical Department:
E-2

S.No.	Roll No.	Name	Signature
1	1510	Vivek Kaushik	
2	1511	Satinder Pal	
3	1513	Dheeraj Kumar	
4	1514	Vishal Phirani	
5	1559	Mayank Gupta	
6	1601	Madhavendra S.Y.	
7	1602	Aniket Kumar	
8	1603	Anshuman Singh	
9	1604	Satya Prakash	
10	1605	Jammula Ratan Deep	
11	1606	Mandeep Kaur	
12	1607	Parul Sareen	
13	1608	Neha Ch.	
14	1610	Nishant Kr. Parmar	
15	1611	Puneet Kumar	
16	1614	Shweta Gaba	
17	1619	Ashish	
18	1620	Dipin Aggarwal	
19	1621	Aditi Bansal	
20	1622	Sumit Gandhi	
21	1624	Vinay	
22	1645	Shilpa Bansal	
23	1812	Abhaar Gupta	

Request for Revision of Multiplying Factor

Electrical Department:
E-3

S.No.	Roll No.	Name	Signature
1	1517	Vineeta	
2	1526	Vikash Sharma	
3	1625	Mukul Gupta	
4	1627	Anubhav Singh	
5	1629	Vikas Singh	
6	1630	Sai Abhishek B.V.	
7	1632	Anshul Gupta	
8	1633	Naveen Yadev	
9	1634	Divya Mittal	
10	1635	Himanshu Goel	
11	1636	Nandeshwar N Rahul	
12	1637	Smriti Garg	
13	1638	Deeksha Aneja	
14	1639	Parneet Kaur	
15	1640	Aayush Gaur	
16	1641	Nitin Bhayana	
17	1643	Anil Kumar	
18	1644	Amit Yadav	
19	1803	Himanshu Jain	
20	1810	Sahil Khanna	
21	1833	Khushboo Singla	

Request for Revision of Multiplying Factor

Electrical Department:
E-4

S.No	Roll No.	Name	Signature
1	1646	Akash Mittal	
2	1647	Ashish Jha	
3	1649	Vipul Goyal	
4	1650	Sumit Kumar	
5	1652	Himanshu Kumar	
6	1654	Shalender	
7	1655	Preeti Singhal	
8	1656	Nirmala	
9	1657	Konasm Biswari	
10	1658	Basavaraj G.L.	
11	1659	Rakesh	
12	1660	Vishal kumar Mehara	
13	1661	Ripu Daman	
14	1662	Dhiraj Kumar	
15	1663	Penumaka Raja Arvind	
16	1664	Opendar Singh	
17	1665	Krishna Prasad.R	
18	1666	Shashank Jain	
19	1756	Umang Chopra	
20	1758	Sumit Tyagi	
21	1777	Sundar S.	
22	1820	Rishabh Dwivedi	
23	1831	Manish Garg	
24	325	Gopal Mani Lall	

1) Siddharth Kalyan	1556/06
2) Mayank Aggarwal	1563/06
3) Mohit Kathpalia	1553/06
4) Ankit Arora	1545/06
5) Aruman Durrani	1558/06
6) Atul Anand	1564/06
7) Sandeep Sodhi	1542/06
8) Manish Dhall	1525/06
9) Tapan Utreja	1530/06
10) Naveen K. Singhal	1548/06
11) Hardeep	1537/06
12) Manoj Sardana	1557/06
13) Shipali	1521/06
14) Supriya	1523/06
15) Sushant Bhalla	1565/06
16) Amandeep Sharma	1535/06
17) Abhimanyu	1554/06
Manoj Kumar	1505/06
) Jyoti Prakash	1518/06
Jai prakash	1550/06
Aniket Gaur	1549/06
ANKIT GUPTA	1552/06
3) Tejpal	1546/06
Nilesh Naidu	1509/06
) Aman Dankadia	1560/06
Aditya Saxena	1549/06
Arpit Saxena	1567/06
G. Phani Bhushan	1528/06
Debashish Ghose	1526/06
Amit Kumar	1544/06
Ayush Singhal	1540/06
Rahul Gond	1536/06
Piyush Arora	1522/06
Prashant Kr.	1533/06
Pankaj Baishnab	1534/06

rrying factor

IT Engineering Students 2K6 Batch

Name	Roll No.	Sign
NILANJAN SAHU	1142/06	Nilanjan Sahu
P.M. PRAKASH	1154/06	Prakash
Nitin Gupta	1137/06	Nitin
udh Ram	1118/06	Budhram
thosh Yadav	1628/06	Uthosh
hit Bansal	1121/06	Rohit Bansal
uneet Yadav	1128/06	Puneet
laga Harish	1140/06	P.N. Harish
ishant	1135/06	Nishant
OHIT Sinam	1153/06	Mohit
arshi SenGupta	1124/06	Devarsh
al Agarwal	1116/06	Anshul
RUDH BHARDWAJ	1110/06	[illegible]
uit Veer	1111/06	Sumeet
eepak	1133/06	D Saynam
ahil Dahiya	1107/06	Sahil
inder Manon	1131/06	R Manon
ep Kumar	1149/06	Sandeep
ishek Kaithal	1145/06	Kaithal
Goyal	1119/06	Nimeet Goyal
nshu Gupta	1123/06	[illegible]
il Dhar Hakim	1141/06	[illegible]
Meena	1157/06	Dmeena
Ahmed	1117/06	[illegible]

TO INCREASE MULTIPLYING FACTOR

1001/ Lovina Gupta

1002/06 Pradeep Bansal Pradeep Bansal

1004 GAURAV MUNDAL Gaurav

1005 [signature]

1006 [signature]

1007 DIGVIJAY ARYA Digvijay

1008 Siddharth

1009 Amitabh Kr.

1010 Naveen Yadav Naveen Yadav

1011 Sandeep Yadav Sandeep Yadav

1012 KAPIL GARG Kapil

1013 AKASH TYAGI Akash

1014 Mukesh Khicher [signature]

1015 PRAVEEN KUMAR [signature]

1016 ABHAY BURMAN Abhay

1017 ANKUR KALRA Ankur

1018 Dheeraj Sheoran Dheeraj

1019 Pradeep [signature]

1020 HITESH CHAWLA Hitesh

1021 Mayank Mayank

1022 Mahak Garg Mahak garg

023 Tushar (TUSHAR ARORA)

024 PRIYANKA GARG. Priyanka Garg

025 Chandan Kumar Chandan Kr

026 Gaurav Kumar Gaurav Kumar

027 Pardeep Rathee Pardeep

028 MANISH YADAV Manish

029 Ravindra Prashant Ravindra

030 Sahil Aggarwal Sahil

031 Sonal Garg Sonal

032 Shobhit Tomar [signature]

45105 Pankaj Kumar Pankaj Kumar

033 Navneet Goyal Navneet

034 ADITYA NEMA [signature]

035 RAVI PRAKASH LAL Ravi

036 Aneesh Bansal Aneesh

037 Samarth Agrawal Samarth

SNO	NAME	ROLL NO	SIGNATURE
1	ASTHA TIWARI	1319/06	Astha tiwari
2	Ankita Chaudhary	1257/06	Ankita
	Jitender Meena	1307/06	Jitender
3.	Rohit Ronald Khess	1311/06	Rohit Khess
4.			
5.	Nisha Meena	1306/06	Nmeena
6.	Shashi Kant	1310/06	Shashi
7.	Raju Kumar	1295/06	Rajiv Kumar
8.	Sanjay Tanwar	1304/06	Sanjay Tanwar
9.	Devinder	1302/06	Devinder
10	Nishant Kumar	1300/06	Nkumar
11.	Mohit	1286/06	Mohit
12.	Ambika	1290/06	Agarwal
13.	Vasundhara Prudhivi	1320/06	Vasundhara
14.	Ranju Devi	1315/06	Ranju Devi
15.	VINEET THAKUR	1318/06	Vineet Thakur
16.	SAMIP DHOT KANT	1321/06	Samip Kant
17	AYUSH SOOD	1322/06	Ayush Sood
18.	Chirag Wadhwa	1323/06	Wadhwa
19.	Vipin Sabharwal	1294/06	Vipin
20	ASHUTOSH KUMAR	40/05	Ash
21.	Mukesh Reddy	1325/06	Mukesh
22.	Dilip Meena	1291/06	Dilip Meena
23.	Prashant Kumar	83/04	Prashant Kumar
24.	Sanjeev Kumar	1326/06	Sanjeev

STUDENTS OF ECE-4
Electronics and communication department

S No	Roll no	Name	Signature
1	1243/06	Vaibhav Chauhan	
2	1237/06	Prateek Singh	
3.	1249/06	Aniruddha Gupta	Aniruddha
4.	1251/06	NITIN BANSAL	
	1241/06	Sushil Kumar	
5.	60/05	Deepit Ganjoo	
6	1244/06	Ashish Singhal	
7.	1248/06	Vishal Gaba	
8.	1236/06	Sumit Mittal	
9.	1238/06	Varun Mehta	
10.	1231/06	Varun Sangwan	
11.	1254/06	Vikas Bishnoi	VB
12	1234/06	Manish Sharma	
13.	1229/06	Mathur Goel	
14.	1616/06	Nishtha Jain	
15.	1237/06	Swati Gwach	
16	1242/06	Avadh Bihari	
17)	1253/06	Sahil Duraja	
18)	1245/06	Sameer Dada	
19)	1234/06	Vivek Wasson	
20)	1240/06	Yatin Kalra	
21)	1233/06	Megha Sethi	
22)	1210/06	Ishita Sharma	
23)	1218/06	Aseem Siwach	
)	1228/06	Rohit Kumar	
25)	1211/06	Himanshu	
)	1223/06	Amit Kumar	
)	1403/06	Rahul	
28	1202/06	NISHANT	

Roll no.	Name	Signature
1255/06	Himanshu Singhal	
1256/06	RAGHVENDRA BHATI	
1257/06	Bhupender Kumar	
1258/06	Anurag Dhingra	
1261/06	SHARMEER	
1263/06	Tirthankar Goyal	
1264/06	Prateek Gupta	
1265/06	Subhashish Dhar	
1266/06	Sudhanshu Shekhar	
1267/06	Nitin Menon	
1268/06	Vishwakarma	
1271/06	Ankur Raina	
1272/06	Hanam Aggarwal	
1273/06	Keshav P.R	
1275/06	Harsh Nanda Damala	
1276/06	P.R. Kaushik	
1277/06	Baljinder Pal Singh	
1279/06	Putcha Vamsi	
1283/06	Gaurav Kumar	
1284/06	Pradeep Kumar	
1285/06	Satyendra Pratap	
19/05	Azhar Masood	
48/05	Subhash	
253/05	Mayur Moon	

Item 13.5: To consider amendment in Ph.D Ordinance as per UGC (Minimum Standards and Procedure for award of M.Phil/Ph.D Degree) Regulation, 2009 published in the Gazette of India on July 11, 2009

The University Grants Commission vide its publication through the Gazette of India dated 11th July, 2009 ~~July 11, 2009~~ has notified UGC ~~(Minimum Standards and Procedure for award of M.Phil/Ph.D Degree)~~ Regulation, 2009 in Gazette which shall apply to every University established or incorporated by or under a Central Act and the Institutions of National Importance. These regulations relating to the minimum standard and procedure for the award of M.Phil /Ph.D degree as forwarded to the Academic Section by Dean (P&D) are enclosed as Appendix 13.5 from page 194 to 196.

The Senate may consider and decide suitable amendments to the existing Ph.D Ordinance of the Institute.

Dean (P+D)
Dean (Academic)
Dean (Acad)

N.I.T. KURUKSHETRA

Appendix 13.5

OFFICE OF THE DEAN (P&D)
NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119

Dean(P&D)/ 8 7 Dated : 5.10.2009

Enclosed please find herewith UGC (Minimum Standards and Procedure for Awards of M.Phil/Ph.D. Degree), Regulation 2009 published in the Gazette of India, In order that the candidates acquiring Ph.D. degree from our Institute qualify for NET exemption for recruitment to the post of Lecturer in various Institutions. The Institute may consider amendment in Ph.D. Ordinances accordingly.

(Krishna Gopal)
Dean (Plg. & Dev.)

Encl : A/a.

Director

Copy to :—
Dean (Academic)

UNIVERSITY GRANTS COMMISSION

UGC (MINIMUM STANDARDS AND PROCEDURE FOR AWARDS OF M.PHIL/PH.D. DEGREE), REGULATION, 2009

New Delhi-110002, the 1st June 2009

F. 1-1/2002 (PS) Exemg.—In exercise of the powers conferred by clause (e) & (g) of sub-section (1) of Section 26 of University Grants Commission Act, 1956 (3 of 1956), the University Grants Commission hereby makes the following Regulations, namely :—

Short Title, Application and Commencement :

1. These regulations may be called University Grants Commission (Minimum Standards and Procedure for award of M.Phil./Ph.D. Degree), Regulations 2009.
2. They shall apply to every University established or incorporated by or under a Central Act, Provincial Act or a State Act, every Institution including a constituent or an affiliated College recognized by the Commission, in consultation with the University concerned under clause (f) of Section 2 of the University Grants Commission Act, 1956, and every Institution deemed to be a University under section 3 of the said Act.
3. They shall come into force with effect from the date of their publication in the Gazette of India.
4. All Universities, Institutions, Deemed to be Universities and Colleges/Institutions of National Importance shall be eligible for conducting M.Phil. and Ph.D. Programmes.
5. Notwithstanding anything contained in these Regulations or any other Rule or regulation, for the time being in force, no University, Institution, Deemed to be University and College/Institution of National Importance shall conduct M.Phil and Ph.D Programmes through distance education mode.

ELIGIBILITY CRITERIA FOR M. PHIL./PH.D. SUPERVISOR

6. All Universities, Institutions, Deemed to be Universities and Colleges/Institutions of National Importance shall lay down the criteria for the faculty to be recognized as Research Supervisor both for M.Phil and Ph.D. Programmes.
7. All Universities, Institutions, Deemed to be Universities and Colleges/Institutions of National Importance shall lay down and decide on annual basis, a predetermined and manageable number of M.Phil and doctoral students depending on the number of the available eligible Faculty Supervisors. A Supervisor shall not have, at any given point of time, more than Eight Ph.D Scholars and Five M.Phil. Scholars.
8. The number of seats for M.Phil and Ph.D. shall be decided well in advance and notified in the University website or advertisement. All Universities, Institutions, Deemed to be Universities and Colleges/Institutions of National Importance shall widely advertise the number of available seats for M.Phil/Ph.D studies and conduct admission on regular basis.

PROCEDURE FOR ADMISSION

9. (i) All Universities, Institutions, Deemed to be Universities and Colleges/Institutions of National Importance shall admit M.Phil/ doctoral students through an Entrance Test conducted at the level of individual University, Institution, Deemed to be University, College/Institution of National Importance. The University may decide separate terms and conditions for those students who qualify UGC/CSIR (JRF) Examination/SLET/GATE/teacher fellowship holder or have passed M.Phil Programme for Ph.D. Entrance Test. Similar approach may be adopted in respect of Entrance Test for M.Phil Programme.

(ii) It shall be followed by an interview to be organized by the School/Department/Institution/University as the case may be.

(iii) At the time of inverview, doctoral candidates are expected to discuss their research interest/area.

(iv) Only the predetermined number of students may be admitted to M.Phil/Ph.D programme.

195

195

10. The admission to the Ph.D Programme would be either directly or through M.Phil Programme.

11. While granting admission to students in M.Phil/Ph.D. Programmes, the Department/Institute/School will pay due attention to the National/State Reservation Policy.

ALLOCATION OF SUPERVISOR

12. The allocation of the supervisor for a selected student shall be decided by the Department in a formal manner depending on the number of student per faculty member, the available specialization among the faculty supervisors, and the research interest of the student as indicated during interview by the student. The allotment/allocation of supervisor shall not be left to the individual student or teacher.

COURSE WORK

13. After having been admitted, each M.Phil/Ph.D student shall be required by the Universities, Institutions, Deemed to be Universities and Colleges/Institutions of National Importance, as the case may be, to undertake course work for a minimum period of one semester. The course work shall be treated as pre M.Phil/Ph.D preparation and must include a course on research methodology which may include qualitative methods and Computer Applications. It may also involve reviewing of published research in the relevant field. The individual Universities, Institutions, Deemed to be Universities and Colleges/Institutions of National Importance, as the case may be, shall decide the minimum qualifying requirement for allowing a student to proceed further with the writing of the dissertation.

If found necessary, course work may be carried out by doctoral candidates in sister Departments/ Institutes either within or outside the University for which due credit will be given to them.

EVALUATION AND ASSESSMENT METHODS

14. Upon satisfactory completion of course work and research methodology, which shall form part & parcel of M.Phil/Ph.D. Programme, the M.Phil/Ph.D Scholar shall undertake research work and produce a draft thesis within a reasonable time, as stipulated by the Institution concerned.

15. Prior to submission of the thesis, the student shall make a pre-M.Phil/Ph.D presentation in the Department that may be open to all faculty members and research students, for getting feedback and comments, which may be suitably incorporated into the draft thesis under the advice of the supervisor.

16. Ph.D candidates shall publish one research paper in a refereed Journal before the submission of the thesis/monograph for adjudication, and produce evidence for the same in the form of acceptance letter or the reprint.

17. The thesis produced by the M.Phil/Ph.D student in the Institutions/Departments and submitted to the University, Institution, Deemed to be University, College/Institution of National Importance, as the case may be, shall be evaluated by at least two experts, out of which at least one shall be from outside the State. It shall be open for University, Institution, Deemed to be University, College/Institution of National Importance concerned to have one examiner from outside the Country.

18. On receipt of satisfactory evaluation reports, M.Phil/Ph.D students shall undergo a viva voce examination which shall also be openly defended.

DEPOSITORY WITH UGC

19. Following the successful completion of the evaluation process and announcement of the award of M.Phil/Ph.D, the University shall submit a soft copy of the M.Phil/Ph.D thesis to the UGC within a period of thirty days, for hosting the same in INFLIBNET, accessible to all Institutions/Universities.

20. Along with the Degree, the Degree awarding University, Institution Deemed to be University, College/ Institution of National Importance, as the case may be, shall issue a Provisional Certificate certifying to the effect that the Degree has been awarded in accordance with the provisions to these Regulations of the UGC.

R. K. CHAUHAN
Secy., U.G.C.

Tabled Agenda
Item No. 13.6: To consider conferment of Honorary Degree of D.Litt to Shri Pranab Mukherjee, Hon'ble Union Finance Minister

The Dean (Academic) has proposed that an Honorary Degree of D.Litt be conferred on Shri Pranab Mukherjee, Hon'ble Union Finance Minister, who is an eminent Parliamentarian, a renowned statesman, a distinguished academician, an able administrator and a social worker. Shri Pranab Mukherjee has accumulated very rich and varied experience through his association with teaching, journalism, diplomacy and administration. It will be a special privilege for our Institute to honour Shri Pranab Mukherjee for his exceptional and outstanding achievements. The proposal of the Dean (Academic) is enclosed as Appendix 13.6 from page 198-200.

As per Clause 39 – Conferment of Honorary Degrees, contained in the First Statutes of all National Institutes of Technology published in the Gazette of India dated 23rd April, 2009, the Senate may consider conferment of Honorary Degree of D.Litt on Shri Pranab Mukherjee, Hon'ble Union Finance Minister.

It is proposed to confer an Honorary Degree of D.Litt. to Shri Pranab Mukherjee, Hon'ble Union Finance Minister who is an eminent Parliamentarian, a renowned statesman, a distinguished academician, an able administrator and a social worker. Hon'ble Sh. Pranab Mukherjee had accumulated very rich and varied experiences through his association with teaching, journalism, diplomacy and administration. He is a versatile genius who has made a mark in every sphere of activity he undertook including authoring books and built up a reputation for efficiency, sagacity and humane approach. He is a recipient of many academic honours and prestigious awards. During the discharge of his duties in various capacities, he always emerged as a model of perseverance, dedication and honesty. These qualities combined with simplicity and graciousness, which are basic traits of his personality, have made him one of the most widely respected and admired personality. Highly educated and internationally renowned, a brilliant teacher, a bold and conscientious administrator and statesman, Sh. Pranab Mukherjee is a leading personality endowed with a wide range of capabilities. His various achievements are a testimony to his ceaseless industry, diligence and dynamism. It will be a special privilege of our Institute to honour a man of Shri Pranab Mukherjee's status for his extraordinary attainments. His enclosed biodata shows his achievements and accomplishments.

Submitted for consideration please.

Dean (Academic)

Detailed Profile: Shri Pranab Mukherjee

Name	Shri Pranab Mukherjee
Constituency from which I am elected	Jangipur
Father's Name	Late Shri Kamada Kinkar Mukherjee
Mother's Name	Late Smt. Rajlakshmi Mukherjee
Date of Birth	1935-12-11
Birth Place	Mirati Kimahar, Distt. Birbhum (West Bengal)
Maritial Status	Married
Date of Marriage	1957-07-13
Spouse Name	Smt. Suvra Mukherjee
No. of Children	No.of Sons:2 No.of Daughters:1
State Name	West Bengal
Party Name	Indian National Congress (INC)
Permanent Address	Flat No. 2-A, First Floor,60/2/7, Kabi Bharti Sarani, Lake Road, Kolkata - 700 029, West Bengal ,Tels. (033) 24648366
Present Address	13, Tallatora Road,New Delhi - 110 001,Tels. (011) 23737623, 23737657 Fax. (011) 23737685 - 22, Greater Kailash - II,New Delhi - 110 048
Email id	pkm@sansad.nic.in
Educational Qualifications	M.A. (History), M.A. (Political Science), LL.B., D. Litt. (Honoris Causa) Educated at Vidyasagar College, Suri, Calcutta University, West Bengal
Profession	Teacher, Journalist, Poet
Positions Held	Elected to Rajya Sabha(July 1969-1975)Deputy Minister, Industrial Development (Jan. 1973-Jan. 1974)Deputy Minister, Shipping and Transport(Feb. 1974-Oct. 1974)Minister of State for Finance(Oct. 1974-Dec. 1975)Re-elected to Rajya Sabha (2nd term)(July 1975-81)Minister of Revenue and Banking (Independent Charge) (Dec. 1975-March 1977)Deputy Leader, Congress Party, Rajya Sabha(1978 -1980) Member, Congress Working Committee (INC)(27 Jan 1978 to 18 Jan 1980) Treasurer, All India Congress Committee(1978 - 1979)Treasurer, Congress (I) Party in ParliamentMember, Central Parliamentary Board, AICC(1978 - 1986)Union Minister of Commerce and Steel and Mines(Jan. 1980-Jan. 1982)Leader of House, Rajya Sabha(1980 -1985)Re-elected to Rajya Sabha (3rd term)(Aug. 1981-1987) Union Minister of Finance with additional charge of Ministry of Commerce and Supply (Jan. 1982-Dec. 1984 and September - December, 1984)Chairman, Campaign Committee of AICC for Conducting National Election to Parliament(1984,1991,1996 and 1998)Chairman, Economic Advisory Cell, AICC(1987 - 1988)Deputy Chairman, Planning Commission(June 1991-May 1996)Union Minister of Commerce(Jan. 1993-Feb. 1995)Member, Rajya Sabha(1993-99)Union Minister of External Affairs(Feb. 1995-May 1996)Member, Business Advisory Committee, Rajya Sabha(1996 - 2003) Member, Committee on Privileges, Rajya Sabha(1996 -2004)Member, Committee on Rules, Rajya SabhaMember, Consultative Committee for External Affairs(1996 - 1999)Re-elected to Rajya Sabha (5th term)(1999 - 2004)Chairman, Central Election Coordination Committee, AICC(28 Jun 1999 onwards)Chairman, Department-related Parliamentary Standing Committee on Science and Technology, Environment and Forest(1997)Member, Congress Working Committee(INC)(Again from 10th August,1997 till date)General Secretary, AICC(1998 - 1999)Chairman, Department-

	related Parliamentary Standing Committee on Home Affairs(June 1998 - May 2004) Member, Central Election Committee, AICC(12 Dec 2001 onwards)Elected to 14th Lok Sabha(2004)Union Minister of Defence(23 May 2004 - 24 October 2006)Leader of House, Lok Sabha(25 May 2004)Union Minister of External Affairs(25 October 2006-22 May 2009)Ministry of Finance (additional charge)(24 January 2009 - May 2009)Re-elected to 15th Lok Sabha (2nd term)(2009)Leader of the HouseUnion Minister, Finance(31 May 2009)
Social and Cultural Activities, Literary, Artistic and Scientific Accomplishments and other Special Interests	(i) President, Nikhil Bharat Banga Sahitya Sammelan, 1995-2001; (ii) Chairman, Planning board, Asiatic Society, Kolkata from 1984 to 1986, 1992-1996 and 2004-2009; (iii) President, Council of Indian Statistical Institute since 2006; (iv) Trustee, Bangiya Sahitya Parishad, 1984-1990; (v) Trustee, Bidhan Memorial Trust, Kolkata since 1998.
Sports, Clubs, Favourite Pastimes and Recreation	
Hobbies	Reading, Gardening and Music
Countries Visited	Widely travelled
Other Information	In International Organization: (i) Board of Governors (a) International Monetary Fund 1982 -1985; (b) World Bank, 1982 - 1985; (c) Asian Development Bank, 1982 -1985; (d) African Development Bank, 1982 -1985; (e) Member of all the Board of governance again from May, 2009; (ii) Chairman, Group 24 (a Ministrial group attached to IMF and World Bank) 1984); Presided over SAARC Council of Ministers Conference, May 1995, November, 1995, 2006 and 2007 Foreign Delegations, Leader of Indian Delegations to: (i) Colombo Plan Finance Ministers' Conference, Singapore in 1975 and Colombo in 1976; (ii) Commonwealth Finance Ministers' Conference in 1982, 1983 and 1984; (iii) Annual General Meeting of World Bank and IMF in 1982, 1983 and 1984; (iv) Annual General Meeting of Asian Development Bank in 1982, 1983 and 1984; (v) Ministerial Conference of WTO, Marrakesh in 1994; (vi) UN General Assembly in 1994, 1995, 2005 and 2006; (vii) Social Summit at Copenhagen in 1995; (viii) 40th Anniversary of Asian Conference, Bandug 1995; (ix) Conference of Commonwealth Heads of Governments (CHOGAM), Auckland 1996; (x) Non-Aligned Foreign Ministers Conference at Carte-Ghana, 1995 Honours and Distinctions conferred: (i) Rated as one of the best five Finance Ministers of the world for the year 1984 according to a survey of Euro Money, journal published from New York; (ii) Conferred Best Parliamentarian Award for 1997; (iii) Conferred Padma Vibhushan for 2007; (iv) His leadership in the Ministry of Finance and other Economic Ministries was well acclaimed, nationally and internationally. He was considered as the key figure in formulating economic policies of the nation for a long term. Under his stewardship India earned the distinction of not withdrawing the last installment of IMF loan to the extent of US$1.1 billion. He was considered as ranking Minister and presided over the Cabinet meeting of the Union in the absence of the Prime Minister during 1980-1985.

Source: Lok Sabha

Government:

- Constitution of India
- Who's Who
- Parliament
- Rules
- Acts
- Schemes
- Employees Corner
- Publications
- Directories
- Websites (External website that opens in a new window)