National Institute of Technology Rourkela

MINUTES

39th MEETING OF BOARD OF GOVERNORS

DATE : 15th February, 2014 (Saturday)
Time : 2.30 P.M.
Venue : Conference Hall, N.I.T. Transit House, A-1/267, Safderjung Enclave, New Delhi

राष्ट्रीय प्रौद्योगिकी संस्थान, राउरकेला
National Institute of Technology, Rourkela

MINUTES FOR THE 39th MEETING OF THE BOARD OF GOVERNORS, NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA HELD AT 2.30 P.M. ON 15.02.2014(SATURDAY) IN THE CONFERENCE HALL, NIT TRANSIT HOUSE, NEW DELHI.

1.	**Sri B. S. Sudhir Chandra** Director (Project & Planning) & Chairman, BOG, NIT, Rourkela, Bangalore Metro Rail Corporation Ltd 3rd Floor, BMTC Complex K.H.Road, Shanthinagar, Bangalore.	...	Chairman
2.	**Prof. Sunil Kr Sarangi** Director National Institute of Technology Rourkela -769 008 (Odisha).	...	Member
3.	**Shri Y. Tripathi, IAS** Director, MHRD, Government of India Dept. of Higher Education Shastri Bhawan, New Delhi-110 001	...	Joint Secretary & F.A., MHRD
4.	**Shri Rajesh Singh,** Director (NITs), MHRD, Government of India Dept. of Higher Education Shastri Bhawan, New Delhi.-110 001	...	Representative of Joint Secretary, MHRD
5.	**Dr. R. K. Bhandari** Ex-Director, Govt. of India, DAEVECC, H.N. 808, Sector 31, HUDA (near HUDA shopping centre) Gurgaon-122001 (Haryana).	...	Member
6.	**Prof. (Ms.) Rintu Banerjee** Professor, Agriculture & Food Engineering IIT, Kharagpur Koraput, Odissa.	...	Member
7.	**Shri R. K. Behera** Chairman, RSB Group N2 – 40, IRC Village,Nayapali, Bhubaneswar.	...	Member

8. **Prof. R.K. Sahoo** ... Member
Professor, ME Dept.,
National Institute of Technology
Rourkela -769 008 (Odisha).

9. **Prof. S. C. Mohanty** ... Member
Associate Prof., ME,
National Institute of Technology
Rourkela -769 008 (Odisha).

10. **Er. S. K. Upadhyay** ... Secretary
Registrar
National Institute of Technology
Rourkela -769 008 (Odisha).

Members who could not be present

11. **Shri Jadhav Sachin Ramchand, IAS** ... Member
Collector & District Magistrate,

Leave of absence was granted for the above member.

A. GENERAL AND PROCEDURAL MATTERS.

BOG-39(2014)-01: ***Welcome to all members with New member to the meeting by the Chairman.***

Prof. R. K. Patel completed his term as BOG member on 21.01.14 and Prof. R. K. Sahoo, ME will be completing his term on 26.04.2014. The Chairman BOG appreciated the contribution of Prof. R.K. Patel as BOG member.

Prof. S. C. Mohanty, Associate Professor, ME, and Prof. S. K. Patra, Professor, EC were nominated by the Senate as BOG members from Associate/Assistant Professor and Professor category w.e.f. 22.01.2014 and 27.04.2014 respectively to the 39th meeting.

Chairman welcomed all the members including the new member Prof. S.C. Mohanty.

BOG-39(2014)-02: ***Confirmation of the minutes of the 38th Meeting of the BOG held on 17.01.2014 at NIT, Rourkela.***

The minutes of the 38th Meeting were sent to the members and no amendments/corrections/modifications have been suggested by the members. The Board confirmed the minutes.

BOG-39(2014)-03: ***To report on the action taken on the decisions made in the 38th Meeting of BOG held on 17.01.2014 and to discuss matters arising out of the minutes.***

The report on the action taken on the decisions made in the 38th Meeting held on 17.01.2014 was given in the **Annexure** for information of the Board.

1) *Up gradation for Prof. B. Majhi, CS to HAG scale was discussed by the Board. Prof. Majhi, was upgraded to AGP Rs.10,500/- vide BOG resolution No. BOG-37(2013)-08, dt.20.12.2013. He assumed the new scale vide Office Order No.NITR/RG/BOG-37/2013/26,dt.8.01.2014. As per the clarification given by MHRD vide letter No.F.No.33-9/2011-TS.III, dt.15.01.2014, [Clause-V], "Professors with Rs.10,500/- AGP will only be considered for HAG Scale and the concerned Professor has to have 6(six) years of service in AGP of Rs.10,000/- or higher". Prof. B. Majhi satisfies all the criteria for HAG scale as per norms of 4-tier flexible faculty structure. On the recommendation of the Selection Committee and subsequent clarification by MHRD, the Board approved that Prof. B. Majhi shall be upgraded to HAG scale as per rule. This will be effective from the date of approval of the Board and financial benefits will be accruing from the actual date of joining.*

2) *The case of Swarup Kumar Mahapatra for release of pension was discussed. The Board vide its resolution No.BOG-35(2013)-23(3) directed the Institute administration to submit the details of pension calculation of Prof. Mahapatra to MHRD for concurrence with a copy to Joint Secretary and Financial Advisor, MHRD. Accordingly all details were sent to MHRD vide letter No.NITR/ES/2013/L/5955, dt.22.08.2013. The Board advised the administration to follow up the case of Prof. Swarup Mohapatra with MHRD .*

[Annexure- A1, Pg. No. 9-13]

BOG-39(2014)-04: Implementation of 4-tier flexible faculty structure in the National Institute of Technology (NITs) – reg. with RR.

MHRD vide letter No.F.No.33-9/2011-TS.III, dt.15.01.2014 has communicated for implementation of 4-tier flexible faculty structure in the National Institute of Technology (NITs) with Recruitment Rules (RRs).

The Board adopted the proposal and advised the administration to implement New RR for faculty members and implement 4-tier flexible structure as circulated by MHRD vide letter No.F.No.33-9/2011-TS.III, dt.15.01.2014. The Director assured the Board that the recent round of selections have followed the prescribed RRs in letter and spirit.

[Annexure- A2, Pg. No.14-35]

B. POLICY AND IMPORTANT ADMINISTRATIVE MATTERS.

BOG-39(2014)-05: ***Report of the BOG Sub-Committee on Organization Structure:***

The Sub-Committee constituted by the Board vide resolution No.BOG-30(2012) - 10 dt.29.06.2012 on organisation structure of the institute had submitted its report for consideration of the Board. The Board vide resolution No.BOG-36(2013)-10 of 20.09.2013 had directed Prof Rintu BanerJee, the Chairman of the Sub-Committee to discuss the issues with the Director as well as other members of the committee and to put up its final recommendations to the Board in this meeting .Prof. Banerjee, after discussing the matter with all concerned, presented the report of the Committee to the Board. The report along with its annexure containing the formal document on organizational structure was discussed by the Board in detail. During discussion at length, the following figured: There need not be PIC for the " Guest House, Safety and security, Transport and Health centre." These units could be under Registrar or Dy Director or Director. finally the Board accepted the report with the following modifications.

"There will not be any PIC for the "Guest House, Safety and Security, Transport and Health Centre". These units will be under the Director. The above arrangement will be reviewed after an year".

Prof. Banerjee was advised to amend her report and the annexure accordingly, and to submit the same directly to the Chairman, BOG for his approval and incorporation in the official minutes. The full report including the formal document on the organizational structure and Citizen's Charter duly approved by the Chairman, is given in the annexure.

[Annexure- A3, Pg. No.36-95]

BOG-39(2014)-06: ***Proposal for amendment of Delegation of Administrative and Financial Powers.***

The Board vide resolution No.BOG-21(2009)-09, dt.19.06.2009 & BOG-32(2012)-11: dt.15.12.2012 respectively had approved delegation of financial and administrative powers. The proposal for amendment of delegation of powers was put up to the Board

The Board directed that Director will discharge the duties of Dy. Director till Dy. Director is appointed. The BOG approved the delegation of administrative and financial powers with changes as given in the Annexure.

[Annexure –A4, Pg. No. 96-97]

C. ACADEMIC MATTERS:4E5S

Nil.

D. ROUTINE ADMINISTRATIVE MATTERS:

Nil.

E. MISCELLANEOUS ITEMS:

Nil.

BOG-39(2014)-07: ***Any other item with the permission of the Chair.***

1) Permission for hiring services of Shri Narayan Pati as a Senior Industrial Relations Executive.

Industry Institute Interaction is a key activity in institutes of higher learning, particularly in the field of engineering and technology. We are under pressure from the Government of India to show performance in this area. One of the major initiatives that the Institute has taken is the establishment of TIIR (Technology Innovation and Industry Relations), Centre. The organization of TIIR is making progress, a dedicated building is expected to be in full fledged operation by end of June this year. The Institute has been looking for an executive officer who will be dedicated to promotion of industry institute interaction.

It was proposed to hire services of Shri Narayan Pati as "Senior Industry Relations Advisor" on contract basis. He will be offered a compensation of Rs.50,000/- per month and residential quarters on payment of appropriate license fee at standard rate for a period of one year. He may, at his discretion, perform minor consulting jobs for other agencies to supplement this income with the following terms and conditions.

1) *While doing consultancy for other organizations, there shall not be any conflict of interest of his activities with that of the Institute. All consultancy activity by Mr. Pati shall need approval of the Institute.*
2) *10% of his consultancy fee will be given to the Institute.*

[Annexure –A5, Pg. No 98-107]

2) ***Allocation of land and building for the Department of Planning & Architecture.***

With approval of the Board of Governors, the Institute has started the B. Arch Programme in 2013 and 29 students have been admitted. As per provisions of the Council of Architecture, the Institute has filed an application with the council for approval of the programme. The Council, before considering this request, has directed us to provide the following:

a) A resolution from the Institution that a minimum of 2 acres of land, out of 645 acres land available, shall be allotted for Department of Architecture and Physical and Academic infrastructure facilities will be developed exclusively for the same.

b) Copy of the building plan located within the 2 acre allocated.

At present, Board of Governors has approved a plan to have a common building for Civil Engineering and Planning and Architecture. In view of the observation of the Council of Architecture to provide dedicated land and building to the Department of Architecture, it is proposed to have a separate building for the Department of planning and architecture. The building location and associated land area are shown in the map given in the annexure.

The Board approved the following:

a) Dedication of one hectare (2.5 acres) of land to the Department of Planning and Architecture inside the campus as shown in the attached map.

b) Construction of a dedicated building of total floor area (8000 sq.m.(four floors + parking) on priority basis. The BWC is directed to work out the details of design and construction. The building should be of a high standard architectural design and preferably green building with platinum/gold rating.

3) ***Proposal for increase in Faculty and Staff strength:***

The Faculty and Staff strength of the Institute was last increased to 369 and 406 from 281 and 309, respectively by MHRD vide No. – F. 14-10 / 2011 – TS.III, dated 31/01/2013. The above sanction was given based on the student strength of 4431 for the Academic Year 2012-13.

The present student strength for the Academic Year 2013-14 has increased to 5192 as follows:-

B. Tech	B. Arch	Dual Degree	Int. M. Sc.	M. Tech	M. Sc.	MBA	MA	M. Rech (Res.)	Ph. D	Total
2331	29	533	262	1001	198	39	31	136	629	5192

Above increase in student strength by 761 [5192-4431] requires increase of faculty strength and staff strength proportionately by 63 [761/12] and 69 [63*1.1], respectively as shown below:-

CADRE	POST	PAY SCALE		Present Sanction	Proposed Sanction	Addition
		PB	AGP/GP			
Faculty	Assistant Professor (on contract) / Assistant Professor / Associate Professor / Professor (HAG Scale).			369	432	63

Officers (Group-A)	Registrar	4	10000	1	1	-
	Deputy Registrar	3	7600	3	3	-
	Assistant Registrar	3	5400	7	7	-
	Librarian	4	10000	0	1	1
	Deputy Librarian	3	8000	2	2	-
	Assistant Librarian	3	6000	3	3	-
	Principal SAS Officer	4	10000	0	0	-
	Senior SAS Officer	3	8000	2	2	-
	SAS Officer	3	6000	2	3	1
	Principal Scientific/Technical Officer	3	7600	2	2	-
	Senior Scientific/Technical Officer	3	6600	2	2	-
	Scientific/Technical Officer	3	5400	4	6	2
	Superintending Engineer	4	8700	0	0	-
	Executive Engineer	3	6600	1	2	1
	Engineer	3	5400	4	5	1
	Senior Medical Officer	3	7600	1	1	-
	Medical Officer	3	5400	2	2	-
	Security Officer	3	5400	1	1	-
	TOTAL			37	43	6
TECHNICAL (Higher Cadre)	Tech. Asst. / SAS Asst. / Jr. Engr. / Phm*	2	4200	49	58	9
	Sr. TA / Sr. SAS Asst. / Asst. Engr. / Sr. Phm.*	2	4600	37	43	6
	TA / SAS Asst. / AE / Pharmacist* (SGII)	2	4800	25	29	4
	TA / SAS Asst. / AE / Pharmacist* (SGI)	2	5400			
	TOTAL			111	130	19
ADMIN. (Higher Cadre)	Supdt. / Accountant / Secretary	2	4200	14	16	2
	Sr. Supdt. / Accountant / Secretary	2	4600	10	12	2
	Supdt./Accountant/Secretary (SG II)	2	4800	7	8	1
	Supdt./Accountant/Secretary (SG I)	2	5400			
	TOTAL			31	36	5

CADRE	POST	PAY SCALE		Present Sanction	Proposed Sanction	Addition
		PB	AGP/GP			
TECHNICAL (Lower Cadre)	Technician / Lab/Work Asst.	1	2000	49	58	9
	Sr. Technician / Lab/Work Asst.	1	2400	37	43	6
	Technician / Lab/Work Asst. (SG II)	1	2800	25	29	4
	Technician / Lab/Work Asst. (SG I)	2	4200			
	TOTAL			111	130	19
ADMIN. (Lower Cadre)	Jr. Assistant	1	2000	28	33	5
	Sr. Assistant / Stenographer	1	2400	20	24	4
	Assistant (SG II) / Sr. Stenographer	1	2800	14	16	2
	Assistant (SG I) / Stenographer (SG II)	2	4200			
	Stenographer (SG I)	2	4600			
	TOTAL			62	73	11
SUPPORT STAFF	Security Guard / Attnd. / Mali / CT	1	1800	24	28	4
	Sr. SG / Attnd. / Mali / Care Taker	1	1900	19	21	2
	SG / Attnd. / Mali / Care Taker (SG II)	1	2000	11	14	3
	SG / Attnd. / Mali / Care Taker (SG I)	1	2400			
	TOTAL			54	63	9
GRAND TOTAL OF ALL NON-TEACHING OFFICERS + STAFF				406	475	69

The Board approved the proposal and advised the administration to send the proposal to MHRD for concurrence.

4) *M. Tech Programme on Safety Engineering in collaboration with MDC, Bhubaneswar.*

The Senate vide resolution No. 2013-47-Senate-10: dt.08.01.2014 discussed on the curriculum and approved the same in principle. Draft Memorandum of understanding (MoU) between National Institute of Technology, Rourkela and Multi Disciplinary Centre on Safety, Health and Environment (A Govt. of Odisha sponsored Autonomous Institute), Bhubaneswar, Odisha on M. Tech in Safety Engineering was approved by the Chairman, Senate.

The Board approved the proposal after considering the following issues:

1) *Since, NIT, Rourkela is located in Odisha, MDC being an Autonomous organization of Govt. of Odisha, the collaborative M. Tech Programme on Safety Engineering was appreciated.*

2) *There are a large number of Industries in the State which require qualified Safety Engineers for their organization.*

3) *Revenue sharing between NIT, Rourkela and MDC Bhubaneswar will be in the ratio NIT: MDC :: 2:1 for GATE stream students and NIT:MDC :: 1:1 for Non-GATE students.*

The Board approved the proposal and directed the administration to sign MoU on 16.02.2014 as proposed. The programme will be started from the Academic session 2014 - 15.

[Annexure –A6, Pg. No 108-143]

The meeting ended with thanks to the Chair.

(S. K. Upadhyay)
Registrar & Secretary
Board of Governors, NIT, Rourkela

(B. S. Sudhir Chandra)
Chairman
Board of Governors, NIT, Rourkela

Annexure- A1

ACTION TAKEN ON THE 38th MEETING OF THE BOARD OF GOVERNORS, NIT ROURKELA, HELD ON 17.01.2014 (FRIDAY) AT NIT, ROURKELA.

BOG-38(2014)-01	Welcome to all members to the meeting by the Chairman.	N.A.
BOG-38(2014)-02	Confirmation of the minutes of the 37th Meeting of the BOG held on 20.12.2013 at Bhubaneswar.	N.A.
BOG-38(2014)-03	To report on the action taken on the decisions made in the 37th Meeting of BOG held on 20.12.2013 and to discuss matters arising out of the minutes.	N.A.
BOG-38(2014)-04	Brief Report on the activities of the Institute since last BOG meeting held on 20.12. 2013.	N.A.
BOG-38(2014)-05	Consider the Minutes of 26th Finance Committee Meeting held on 17th January, 2014.	Implemented vide O.O. No. NITR/RG/BOG-38/2014/90, dt.05.02.2014.
BOG-38(2014)-06	Report of the BOG Sub-Committee on Organization Structure:	The item was deferred.
BOG-38(2014)-07	Proposal for amendment of Delegation of Administrative and Financial Powers.	The item was deferred.
BOG-38(2014)-08	Approval of final list of students to be awarded degrees in the 11th Convocation to be held on 18.01.2014.	N.A.
BOG-38(2014)-09	Action point arising out of the decision taken in the 7th Meeting of the Council of NITs held on 18.10.2013 at Manekshaw Centre, Dhaula Kuan, Khyber Line, Delhi.	Implemented vide O.O. No. NITR/RG/BOG-38/2014/91, dt.05.02.2014.
BOG-38(2014)-10	Any other item with the permission of the Chair. 1) Proposal for extension of Probation period of faculty for Confirmation-Regarding: 2) Proposal for offer four Distinguished Alumnus Awards in the 11th Convocation to he held on 18.01.2014. 3) Proposal to adopt NITRAA as the Alumni Relations Wing of the Institute. 4) Proposal for Establishment of Centres of Research. 5) Installation of Mobile Towers in the Campus. 6) Complaint received from Prof. Shivraj Ansari, Krishi Bhavan, New Delhi dt. 16.12.2013 regarding Irregularities in on-going faculty recruitment process in NIT, Rourkela.	 Implemented vide O.O. No. NITR/RG/BOG-38/2014/92, dt.05.02.2014. N.A Implemented vide O.O. No. NITR/RG/BOG-38/2014/93, dt.05.02.2014. Implemented vide O.O. No. NITR/RG/BOG-38/2014/95, dt.05.02.2014. Implemented vide O.O. No. NITR/RG/BOG-38/2014/94, dt.05.02.2014. N.A

(S. K. Upadhyay)
Registrar and Secretary, BOG

राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA - 769008, ओडिशा ODISHA

RIGHT TO INFORMATION

To

No. NITR/ES/2013/L/ 7850
Date: 08.11.2013

Sri. Rajesh Singh
Dy. Secretary (NITs)
Ministry of HRD, Govt. of India, Shastri Bhawan
New Delhi -110 015

Sub: Clarifications on Service-transfer of Prof. S.K. Mahapatra of NIT-Rkl (now in IIT-BBSR)-regarding.

Ref: This office letter No: NITR/ES/2013/L/5955 dt. 22.08.2013

Sir,

This has reference to our letter regarding the subject cited above. The case of Prof. Swarup Kumar Mahaptra is long pending and he is repeatedly requesting our administration to regularize his pension payment. As we have not heard anything from the Ministry, we are not in a position to take any decision on his request.

Hence, you are once again requested to expedite a reply to our earlier communication referred above [copy enclosed] so that his case can be settled amicably at our end.

With regards,
Yours sincerely,

(S.K.Upadhyay)
REGISTRAR

Encl: As above

Copy to: Shri Yogendra Tripathi, IAS, Joint Secretary & Financial Advisor, MHRD, Govt. of India, Dept. of Secondary & Higher Education, Shastri Bhawan, New Delhi-110 015

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राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA - 769008, ओडिशा ODISHA

RIGHT TO INFORMATION

No: NITR/ES/2013/U 5955
Date: 22.08.2013

To

Sri Rajesh Singh,
Dy. Secretary (NITs)
Ministry of HRD, Govt. of India, Shastri Bhawan
New Delhi

Sub: Clarifications on Service-transfer of Prof. S. K. Mahapatra of NIT-Rkl (now in IIT-BBSR) – regarding

Sir,

This has reference to the subject cited above. Once again it is stated that Prof. Swarup Kumar Mahapatra had joined this Institute as a Professor on 22/08/2006. Prior to this, he was a faculty in UCE, Burla (a Govt. of Odisha Institution) since 11/04/1991. After combination of his past service in due process, he has allowed to continue under the old Pension & GPF scheme.

2. Subsequently, he was selected to join as an Associate Professor in IIT-Bhubaneswar. He requested for relieve on lien. However, in view of his short period of service in the Institute, his request was not granted on the basis of rules position prevalent at that time. Further, due to less than 20 years of total service (rendered in NITR + UCEB), he was also not eligible for taking Voluntary Retirement. Finally on his request, he was released on 14.07.2009 on Technical Resignation to enable him to join IIT-Bhubaneswar.

3. This Institute was prepared to transfer pro-rata pension + Gratuity + Leave Salary to IIT-Bhubaneswar u/r 26(2) of the CCS (Pension) Rules, 1972 to enable past service combination of Prof. Mahapatra. However, IIT-Bhubaneswar desired to treat his appointment in IIT-Bhubaneswar as permanent absorption and therefore, requested to pay the terminal benefits directly to Prof. Mahapatra u/r 37 & 37A of the aforesaid rules.

4. The matter was taken up with the MHRD vide this Institute's letter dated. 05.07.2012 while seeking certain clarifications on service – transfer of Prof. Mahapatra; especially in view of the applicability of Rule 26(2) or Rule 37 & 37(A) of the CCS (Pension) Rules, 1972 in this regard. This Institute again approached the MHRD for a proper and clear cut direction vide its letter dated 22.01.2013, but till date nothing has been heard.

5. In the meantime, this Institute has come across the notification dated 28.03.2012 of the DoPT on the instant subject [copy of the same is attached herewith]. Wherein certain amendments regarding 'permanent absorption' under rule 39-D of CCS (leave) rules, 1972 have been made which shall come into force w.e.f. 28th March, 2012.

6. In view of the above, the matter was put up to Board for a suitable decision. The Board vide its resolution No. BOG-35(2013)-23(3) dt. 21.06.2013 directed the institute administration to submit the details of pension calculation of Prof. Mahapatra to MHRD for concurrence with a copy to Joint Secretary and Financial Advisor, MHRD (copy of the details of pension calculation is attached herewith).

7. Since the matter is long pending, I would request you please look into the matter and issue a clear cut direction in consultation with the Joint Secretary & Financial Advisor of the MHRD regarding service transfer under rule 26(2) / payment of terminal benefits directly to Prof. Mahapatra under rule 37 & 37(A) of CCS (Pension) Rules, 1972 read with 39-D of CCS (Leave) rules,1972 so that further needful can be done from this end.

With regards,

Yours sincerely,

(S. K. Upadhyay)
REGISTRAR

Encl: as above.

Copy to: i) Shri Yogendra Tripathi, IAS, Joint Secretary & Financial Advisor, MHRD, Govt. of India, Dept. of Secondary & Higher Education, Shastri Bhawan, New Delhi-110 015.

राष्ट्रीय प्रौयोगिकी संस्थान, राउरकेला
National Institute of Technology, Rourkela
स्थापना कार्यालय
Establishment Office

C.C.S.(Pension) Rules, 1972

PENSION-CUM-GRATUITY CALCULATION SHEET (PROVISIONAL)

1. Name of the Institute Employee	:	Prof. Swarup Kumar Mohapatra			
2. Present or Last Appointment (including name of office)	:	Ex-Professor, EC-106798 Dept. of Mechanical Engineering			
3. Date of Birth (by Christian Era) (in figures & Words)	:	01/06/1966 (First June Nineteen hundred & Sixty Six)			
4. Date of beginning of Service	:	22/08/2006 [at NIT Rourkela]			
5. Date of Resignation [Technical]	:	14/07/2009 [from NIT Rourkela]			
			Years	Months	Days
6. a) Length of Gross Service	:		02	10	22
Less Non-Qualification Service	:		-	-	-
7. Qualifying Service [at NIT]	:		02	10	22
8. a) Addition of Qualifying Service (from UCE Burla)	:		15	03	10
9. Total Qualifying Service (Sl.No. 7+8)	:		18 (Limited to 18 yrs. or 36 half-yearly units)	02	02
10. Emoluments for pensionary benefits					
a) Last pay drawn on Revised Scale of Pay	:	Rs. 57,920/-			
11. Revised Pay Band [PB-4]	:	Rs. 37400-67000 A.G.P. Rs.10000/-			
12. Amount of Pension	:	Rs. 57920/2 = Rs.28,960/-			
13. Amount of Retirement Gratuity : {(PayBand+GP)+DA} x no. of units / 4	:	47920+10000+15638 x 36 / 4			
DA as on 14/07/2009 = 27%		= 6,62,022/-			

[redacted]

14. Amount of Family Pension		
a) Before 67 years of age	:	Rs. 28,960/-
b) After 67 years of age 30% of (Pay Band + G.P) last drawn	:	Rs. 57920/- x 30 100 = Rs. 17,376/-
15. Details of Commutation of Pension		
a) Amount of monthly pension Commuted (40% of Pensionary value)	:	Rs.28960/- x 40% Rs.11,584/-
b) Amount of commuted value	:	Rs.11584/- x 9.019 x 12 =Rs. 12,53,713/-
16. Outstanding Institute dues adjusted From Gratuity	:	Final clearance from all side
17. Amount withheld from gratuity Pension assessment of Institute dues	:	---
18. Amount of Pension after commutation (28,960-11,584)	:	Rs.17,376/-
19. Date of commencement of Pension	:	Rs.15/07/2009

Superintendent — Senior Superintendent — Asst. Registrar(ES-I)

Dy. Registrar(FA) — Registrar

Annexure- A2

F.No.33 – 9 / 2011 – TS.III
Government of India
Ministry of Human Resource Development
Department of Higher Education
NITs Division
--*-*-*

Shastri Bhawan, New Delhi,
dated, the 15th January, 2014

To

The Directors of the 30 NITs.

Subject:- **Implementation of 4 – tier flexible faculty structure in the National Institutes of Technology (NITs) – regarding.**

Sir / Madam,

I am directed to refer to this Ministry's letter of even number dated 23rd August, 2013 and 12th December, 2013 on the subject cited above.

2. The meeting of the Committee constituted to devise norms for implementation of the four-tier flexible cadre (faculty) structure for both the new and the existing faculty in NITs, IIITs and ISM–Dhanbad was held under the Chairmanship of Additional Secretary (TE) on 16th December, 2013 (Monday) at Ministry of Human Resource Development, Shastri Bhawan, New Delhi.

3. The Committee in its aforesaid meeting resolved the following:-

(i) That there would be no automatic migration to the salaries and AGP's of the four-tier flexible faculty structure;
(ii) Any change of the Grade Pay under Four-Tier will be purely through open advertisements and on the recommendation of duly constituted Selection Committees;
(iii) Those who do not fulfill the essential qualifications, relevant experiences and other essential requirements as in <u>Annexure – I [pages 3 to 4]</u>, however, will continue in the present grade;
(iv) As an eligibility criteria for the post of Professor, the requirement of minimum four year's experience at the level of Associate Professor shall mean that of Associate professor under the Four-Tier System i.e. at the AGP of ₹9,500/- . Associate Professors of three tier system with Academic Grade Pay of ₹9,000/- shall also be eligible but with seven year's experience, if they meet the relevant academic requirements for the post;

....contd./-

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[RAVI-VIII, Pay Anomaly & CAS-VIII - Faculty (15.01.2014).doc]

(v) Professors with ₹10,500/- AGP will only be considered for HAG Scale in accordance with Ministry's letter dated 22nd March, 2013 and the concerned Professor has to have 6 (six) years of service in AGP of ₹10,000/- or higher; and

(vi) The academic criteria as approved by the Council of NITs [Annexure – I] has to be used in conjunction with the Ministry's letter F.No.33–9/2011–TS.III dated 23rd August, 2013 [Annexure – II (pages 5 to 7)] for selection under four-tier flexible pay structure.

4. The Recruitment Rules and other guidelines to be adopted by the Board of Governors (BOGs) are attached at Annexure – III [pages 8 to 22].

5. The NITs are advised to strictly adhere the aforesaid instructions for both the new and the existing faculty in NITs.

6. This issues with the approval of the competent authority in the Ministry.

Yours faithfully,

[Rajesh Singh]
Director (NITs)

Encl.: as above.

Copy to:-

1. The Chairpersons, Board of Governors of National Institutes of Technology (NITs) for information and further necessary action.
2. Guard File.

[Rajesh Singh]
Director (NITs)
Tel: 23073687

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ANNEXURE – I

Prescribed Minimum Qualification and Experience for Faculty positions of NATIONAL INSTITUTES OF TECHNOLOGY

(Under four tier flexible faculty structure)

Designation, Pay Band and Academic Grade pay	Essential Qualification	Relevant Experience	Other essential requirements	Additional Desirable requirements
Assistant Professor (On contract) PB – 3 with Grade Pay of ₹6000/- + 07 additional non-compounded increments.	Ph.D.	None	None	One publication in an SCI Journal.
Assistant Professor (On contract) PB – 3 with Grade Pay of ₹7000/-	Ph. D.	01 year.	One paper accepted for publication in SCI Journal.	Two papers in SCI Journals or one patent, may be based on Ph.D. work.
Assistant Professor PB – 3 with Grade Pay of ₹8000/-	Ph. D.	03 years after Ph.D. or 06 years total (not counting Ph.D. enrolment period) after obtaining M. Tech. degree.	02 papers in SCI journals outside Ph.D. work. One ongoing sponsored project for candidates from academia. Two experiments or computational projects added to teaching laboratories where appropriate.	One Ph.D. supervision ongoing; 01 Patent; Experience in industry or R&D lab. of repute; M.Tech., M.Sc. or B.Tech. project supervision on live industrial problems.
Associate Professor PB – 4 with Grade Pay of ₹9500/-	Ph. D.	06 yrs after Ph.D. or 09 years total (not counting Ph.D. enrolment period), out of which 03 years should be after Ph.D. Three years at the level of Assistant Professor with AGP of ₹8000/- or	04 papers in SCI journals after Ph.D.; One Ph.D. guided as sole or principal supervisor plus one continuing. Two projects ongoing or one ongoing plus one completed. Two experiments or computational projects added to teaching laboratories where appropriate. Academic outreach activity equivalent to two self financed short term courses.	01 or more patents; Supervising two or more students for Ph.D.; Strong liaison with industry; Offering courses through application of ICT.

Designation, Pay Band and Academic Grade pay	Essential Qualification	Relevant Experience	Other essential requirements	Additional Desirable requirements
		equivalent in a reputed university, R & D Lab. or relevant industry.		
Professor PB – 4 with Grade Pay of ₹10,500/-.	Ph. D.	10 years after Ph.D. or 13 years total [not counting Ph.D. enrolment period] out of which 07 years are to be after Ph.D., At least three years to be at Associate Professor level in an institution of repute.	Two Ph.D. degrees guided in Career as sole or principal supervisor. The following during the past 04 years; (i) 03 papers in SCI Journals; (ii) One High value sponsored or consultancy project; (iii) Academic outreach activity equivalent to two self-financed courses offered as coordinator and main teacher; (iv) Two experiments or computational design projects with added to teaching laboratories where appropriate.	One or more Patents; Supervised more than three students for Ph.D.; Preparing E-Learning material. At least one self-financed short-term course offered every year. Strong liaison with industry. Offering significant support to institute management; High value sponsored or consultancy projects.
Professor HAG Scale ₹67,000 - ₹79,000/-	Ph. D.	Six years as Professor with AGP of ₹10,000/- or ₹10,500/- in an Institute of national importance.	04 Ph.D.s guided as sole or principal supervisor plus at least one full time resident student continuing. The following during the past six years (i) 04 papers in SCI journals; (ii) 02 high value sponsored or consultancy projects plus one ongoing; (iii) Academic outreach activity equivalent to 03 self-financed short-term courses offered as coordinator and main teacher; (iv) Three experiments or computational projects added to teaching laboratories (v) Significant contribution to institute management through personal initiative in responsible positions.	Truly significant contribution in one area – publications, writing of text books or reference books, sponsored projects, consultancy, and support to industry, E-learning packages, creative contribution to institute's welfare.

ANNEXURE – II

F.No.33 – 9 / 2011 – TS.III
Government of India
Ministry of Human Resource Development
Department of Higher Education
NITs Division
--*-*

Shastri Bhawan, New Delhi,
dated, the 23rd August, 2013

To

The Directors of all the 30 NITs.

Subject:- Implementation of 4 – tier flexible faculty structure in the National Institutes of Technology (NITs) – regarding.

Sir / Madam,

I am directed to state that the Council of NITs in its 3rd meeting held on 18.11.2011 under the Chairmanship of Hon'ble HRM vide Item No.3.17 resolved that individual NITs will be allowed to adopt the 4-tier flexible faculty cadre structure. It has further been reiterated by the Committee constituted under the Chairmanship of Dr. Anil Kakodkar to review the NITs system, which in its first meeting held on 12.02.2012, deliberated that it is desirable that NITs align with IITs in terms of 4-tier flexible system.

2. The Ministry of HRD vide its letter No.F.33 – 7 / 2011 – TS.III dated 14.03.2012 issued guidelines on promotion of faculty members in NITs under Career Advancement Scheme (CAS) wherein under para 4(s), it was specifically mentioned that all the NITs will be required to adopt 4-tier flexible faculty structure (presently operating in IITs, IIMs, IISERs and NITIE) and that vide this Ministry's letter No.F.33-7/2011-TS.III dated 18.03.2013, it was informed that the CAS policy has been dispensed with effect from 30th April, 2013.

3. In light of the above, the proposal for switching over to a 4-tier flexible faculty structure is now concurred by the Integrated Finance Division of this Ministry and approved by the Hon'ble HRM in his capacity as the Chairman of the Council of NITs for adoption / implementation by the respective NITs, after adoption by the respective Board of Governors. The approved norms of 4-tier flexible faculty structure are enclosed for implementation by the NITs.

Yours faithfully,

[Rajesh Singh]
Director (NITs)
Tel: 23073687

Encl.: as above.

Copy for information to:- The Chairpersons, Board of Governors of the National Institutes of Technology (NITs).

[RAVID:\RR, Pay Anomaly & CAS\RR - Faculty (15.01.2014).doc]

Norms of 4- tier Cadre Structure of Faculty Posts in the National Institutes of Technology (NITs)

Sl. No.	Designation, Pay Band and Academic Grade Pay	Essential Qualification and Relevant Experience
1.	**Assistant Professors (On contract)** PB-3 of ₹15600-39100 with AGP of ₹6,000/- p.m.	(i) Assistant Professors to be recruited on contractual basis are not part of the regular faculty cadre in NITs. Appointment at this level may be made on contract basis to enable bright young Ph.D.s scholars to teach and earn experience in premier institutions. (ii) At the entry level they may be placed in Pay Band PB-3 of ₹15600-39100 with Academic Grade Pay (AGP) of ₹6000/- p.m. with seven non-compoundable advance increments. (iii) To encourage fresh Ph.D.s to join the teaching system, at least 10% of the total faculty strength should be recruited at this level. However, relaxation in respect of educational qualifications could be given upto 25% of total Assistant Professors recruited. The reasons for such relaxations should be duly recorded and reported to the Board of Governors of the respective institutions. (iv) After one year of post Ph.D. experience, these Assistant Professors shall be placed in the AGP of ₹7,000/- p.m.
2.	**Assistant Professors** PB-3 of ₹15600-39100 with AGP of ₹8,000/- p.m.	(i) To be appointed in PB-3 to be placed at ₹22500/- with AGP of ₹8000/- p.m. For direct recruits, minimum pay in the Pay band to be fixed at ₹30,000/-. (ii) For appointment as Assistant Professor, one should have a Ph.D. with first class at the preceding degree or equivalent in the appropriate branch with a very good academic record throughout and at least three years industrial/research/teaching experience excluding however, the experience gained while pursuing Ph.D. (iii) Assistant Professors on completion of 3 years of service shall move to Pay Band of ₹37400-67000 (PB-4) with an Academic Grade Pay (AGP) of ₹9000/- and will, however, continue to be designated as Assistant Professor.

Sl. No.	Designation, Pay Band and Academic Grade Pay	Essential Qualification and Relevant Experience
3.	**Associate Professors** PB-4 of ₹37400-67000 with AGP of ₹9,500/- p.m.	(i) To be appointed in PB-4 (₹37400-67000) with AGP of ₹9500/- p.m. For direct recruits. Minimum pay in the PB-4 to be fixed at ₹42,800/-. (ii) For appointment as Associate Professor, one should have a Ph.D. with first class at the preceding degree or equivalent in the appropriate branch with a very good academic record throughout and a minimum of six years Teaching Industry/Research experience, or which at least three years' should be at the level of Assistant Professors, Senior Scientific Officer / Senior Design Engineer.
4.	**Professors.** PB-4 of ₹37400-67000 with AGP of ₹10500/- p.m. Professors: HAG Scale (₹67000-79000) without any GP	(i) For appointment as Professor, one should have a Ph.D. with first class at the preceding degree or equivalent with a very good academic record and a minimum of 10 years experience of which at least 4 years should be at the level of Associate Professor. (ii) For Direct Recruits, Minimum pay in the Pay Band to be fixed at ₹48,000/-. (iii) Upto a maximum of 40% of the sanctioned posts of Professors after regular service of 6 years as Professor can be awarded HAG Scale of ₹67000-79000 without any GP in all NITs after fulfilling the eligibility conditions given in the guidelines for implementation of HAG scales in this Ministry's letter No.34-9/2012-TS.III dated 22.3.2013. (iv) While implementing the HAG scales, those Professors of NITs and CFTIs who are appointed as Directors in the NITs system by the MHRD, shall deemed to have been placed in the HAG scale notionally from the day they took charge as Directors in NITs or from the day the guidelines were issued by the Ministry vide its letter No.F.23-1/2008-TS.II dated 18.8.2009, whichever is later.

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ANNEXURE – III

GOVERNMENT OF INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT
DEPARTMENT OF HIGHER EDUCATION
--*-*

Recruitment Rules for the faculty posts under four – tier flexible faculty cadre in National Institutes of Technology (NITs)

1. **Short title and commencement** : These rules may be called the NIT Faculty Recruitment Rules, 2013. These shall come into force from the date of their acceptance / adoption by the Board of Governors of the concerned Institute.

2. **Definitions** : In these rules, unless the context otherwise requires;

   a) "Act" means National Institutes of Technology, Science Education and Research (NITSER) Act, 2007.
   b) "Statutes" means the First Statutes of the NITs and the Statutes subsequently framed by the respective NIT or framed by the Ministry of Human Resource Development.
   c) "Service Rules" means Service Rules of the respective NIT.
   d) "Faculty" means the Professor, Associate Professor and Assistant Professor of the NITs.

3. **Method of Recruitment and other matters** : The method of recruitment and other matters relating to the post of Faculty shall be specified in the Schedule annexed to these rules.

4. **Deputation / Contractual Appointments** : Faculty, who are appointed on contractual basis, shall be for a fixed period not exceeding five years.

5. **Disqualification** : No person,

   (i) Who had entered into or contracted a marriage with a person having a spouse living; or
   (ii) Who having a spouse living, has entered into or contracted a marriage with any person.

   shall be eligible for appointment to the said post;

   provided that the Board of Governors may, if satisfied that such marriage is permissible under the personal law applicable to such a person and the other party to the marriage and that there were other grounds for so doing, exempt any person from the operation of this rule.

6. **Saving** : Nothing in these rules shall affect reservations, relaxations of the age limit and other concessions required to be provided for the candidates belonging to the Scheduled Castes, Scheduled Tribes, Other

Backward Classes, Ex-servicemen and other special categories of persons in accordance with the orders issued by the Central Government from time to time in this regard. These rules shall also not affect the recruitments already made or for which recruitment process has already commenced; but any appointment or promotion to higher post proposed to be made or made subsequent to the notification of these Recruitment Rules will be governed by these Recruitment Rules.

7. **Other conditions of service** : The other conditions of service of the Faculty for which no specific provisions have been made in these rules shall be regulated in accordance with such rules as are, from time to time, applicable as per the First Statutes of the NITs and the subsequent amendments. For matters not covered by the Statutes, the corresponding Central Government Rules shall be applicable.

8. **Qualifications and other requirements of Selection** : Qualifications and other requirements of selection for various faculty posts are given in detail in the **Annexure – I (pages 3 to 4)**.

9. These rules are bare minimum and the Board of Governors can however fix higher benchmarks, higher than the prescribed in consultation with the Council of NITs.

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SCHEDULE

Recruitment Rules (RRs) for the Post of Assistant Professor, Associate Professor and Professor of NITs.

1. **Name of Posts** :

   Assistant Professor / Associate Professor / Professor of NITs.

2. **Number of Posts** :

   As per norms fixed by the Govt. of India

3. **Classification** :

   Group – A (Pay Bands PB – 3 and PB – 4)

4. **Whether Selection post or non-Selection post**:

   By Direct Recruitment

5. **Age limit for Direct Recruitment** :

   Fresh appointment beyond the age of 60 years is discouraged except in the case of faculty with exceptionally brilliant research career and with ongoing or approved externally funded research projects.

6. **Educational and other Qualification required for Direct Recruits** :

   The essential qualifications, relevant experience and other essential qualifications have been given in **Annexure – I (page 3 to 4)**.

7. **Whether age and educational qualifications prescribed for Direct Recruits will also apply in Case of promotees** :

   There shall be no distinction between external and internal candidates with regard to the requirements of qualification and experience.

8. **Period of probation, if any** :

   One year. It may be extended by the respective BoG, on recommendation of the Director.

9. **Method of Recruitment:**

   Direct Recruitment.

10. In case of recruitment by promotion / deputation / absorption, grades on which promotion / deputation / absorption to be made applicable :

Not applicable.

11. Basic principles of Faculty recruitment:

a) A Ph.D. degree shall be the minimum qualification for a regular faculty position in NIT.

b) All recruitment and pay-fixation shall be done by the BoGs of the Institutes only on the recommendations of duly constituted Selection Committees. There shall be no scope of fixing of altering pay (pay in pay-band or grade pay) outside the Selection Committee. The Selection Committee shall be the only entity empowered to consider the past services and qualifications of a candidate.

c) Recommendations of the Selection Committee will be arrived at by discussions within the Committee. Contents of such discussions and details of transactions within the Committee will not form a part of permanent records or minutes.

12. Distribution of posts among departments / centres and designations:

While there is no rigid formula for distribution of sanctioned posts among the departments and centres within an Institute, pages at 19 and 20 gives a recipe for distributing sanctioned faculty posts among various departments of an Institute. But the BOG, on the recommendation of the director, shall dynamically allocate sanctioned faculty positions among the departments taking into consideration academic programmes of various departments, existing quality of faculty, expected retirements and availability of bright candidates.

There will be four designations – Professor, Associate Professor and Assistant Professor and Assistant Professor (Contract).

13. Qualifications and Experience:

Qualifications and experience required for various posts as well as the selection procedure are listed at pages 3 to 4 and pages 14 to 17, respectively.

14. Faculty from industry without Ph.D. degree:

There shall be necessary provision for inducting faculty from industry (or comparable organisations) with substantial professional and R&D

experience, but not having a Ph.D. degree. If in the opinion of the Selection Committee, candidates have good number (say 10) of publications in leading journals of the field, the requirement of Ph.D. degree may be waived.

15. Policy on avoiding in-breeding:

Most leading universities of the world, including the best Institutes of India have an explicit or implicit policy of not inducting their own students into the faculty. To avoid such in-breeding, the NITs will follow the following policies:

a) Candidates who have obtained or are expected to obtain their most recent degree (Ph.D.) from the Institute will normally not be considered for recruitment, except where there is a 3 years' gap (approximately) between leaving the Institute and the expected date of joining.

b) This is not applicable to candidates who are already members of the faculty, either regular or on contract, and are pursuing a higher degree in the Institute.

c) In special cases, where the department (at the time of short-listing) or the Selection Committee feels that an exception needs to be made (for reasons such as severe shortage of faculty in a given academic field or exceptionally brilliant candidate or any other), the reasons for such exceptions are to be recorded in writing and put up to the Board of Governors for approval. The Board, if convinced, may confirm the selection. Such appointments will not serve as precedence.

16. Multiple attempts:

In order to keep the number of candidates interviewed within practical limits, Scrutiny Committee may, if it deems fit, reject a candidate on his third or further attempt, if the candidate has failed to win the same post in two previous attempts, (either in scrutiny or selection stage), even if he meets the short-listing criteria, except when there is significant new achievement justifying an exception.

17. Functioning of the Selection Committees:

While the Scrutiny Committee and Selection Committee will use all information available to them and be as quantitative as possible, their recommendations will reflect a collective decision based on accumulated professional experience which is often not possible to quantify. Committees will not be obliged to record the details of their individual reasoning process.

18. **Auxiliary Faculty Positions:**

Norms for appointment of adjunct, honourary, chair, emeritus, contractual, visiting, ad hoc and temporary faculty are given at pages 21 to 23.

19. **Seniority of Faculty:**

Personal prospects as well as responsibilities assigned by the Administration in an Institute of higher learning should be decided on academic merit, scholastic contribution and performance, rather than by service seniority.

20. **Maintaining National character of NITs:**

As decided by the Council of the National Institutes of Technology (NITs), the Institute shall strive to recruit 50% faculty not domicile of that State in which the Institute is located.

21. **Miscellaneous:**

A copy of these regulations including the academic criteria specified for various posts and selection procedure in **Annexure – I to III** will be made available to every member of the Selection Committee before start of interviews.

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PROCEDURE FOR SELECTION OF FACULTY IN NIT SYSTEM

Today there is great diversity among the selection procedures being followed in institutions of higher learning in our country. Different systems have evolved in different institutes in response to their emphasis on research and teaching, historical and geographical factors. The procedure outlined here has generally, but not exactly, been followed in most IITs. The procedure is prescribed as a guideline, without insisting that it be followed religiously. Boards of Governors may opt for alternative procedures after examining their merit vis-a-vis the base line procedure given below.

1. The Director will create an "Advisory Committee on Faculty Recruitment (ACoFAR)" with a senior member of the faculty as the Chairman. Normally, he should be the Dean (Faculty Welfare); but Director shall have the discretion to assign the responsibility to Dy. Director or another senior Professor or handle it himself. The Chairman of ACoFAR shall be authorized to communicate with departments, candidates and experts on the advice of Director. In addition, the Committee shall discharge the following functions:

    a) Examine and advise on distribution of faculty positions among various departments;
    b) Proactively search for faculty candidates in India and abroad.
    c) Assist the Director in examining, short listing criteria and preparing panels of short listed candidates submitted by departments;
    d) Examine and recommend proposals for deviation in age, formal qualifications, industry experience or any other criterion or guideline;
    e) Reservation of positions for specialization or sub-specialisation and rank of faculty to be inducted; and
    f) Proactively search for candidates from reserved categories, and if not available after repeated attempts, prepare proposals for de-reservation in accordance with the relevant rules & regulations.

2. The Institute will create a panel of experts and update it on annual basis. The list will be prepared by taking inputs from departments. Director may also add extra names or delete some from the list. Normally the experts should be drawn from NITs, IITs, IIMs, IISERs, IISc, University departments, major R&D Laboratories (CSIR, ICAR, DAE, ISRO, DRDO etc) and major industry. The list, along with postal and electronic addresses, designations, specialization and other relevant particulars of proposed experts is to be placed before the Senate and then the BoG for their approval. Every higher authority shall have the power to add and delete names. In addition, fellows of INAE and the 3 science academies will be automatically included in the panel. Every attempt should be made to ensure that major specializations of each department are adequately represented in the panel.

3. While the above is a permanent list, upgraded periodically, preferably every year, the BOG, at its discretion, may permit Director to choose experts for every single selection process from the full panel or from specific sub panels.

4. As per NIT Act, the visitor shall nominate one member to the selection committee. It is observed in practice that being present in all sessions of a selection process (that spreads over two to four weeks) becomes hard on the distinguished professors who serve as visitor's nominees, and they are often unwilling to spare the time. The Ministry will recommend to the Hon'ble Visitor to nominate a panel of five distinguished persons in different subject areas to

serve as Visitor's nominees and permit institutes to invite them as per their availability and convenience.

5. The director will send a copy of the panels approved by the Secretariat of the Council of NITs for records.

6. It is extremely important that the suggested panel of experts is examined critically by the Board and the Ministry and any member with a questionable integrity is removed.

7. Prior to a selection process, the Director will choose experts from the approved panels ensuring a reasonable distribution among specilisations, and to the extent possible, diversity of background, place of work etc.

8. In addition to the expert members of the selection committee, the Director, as Chairman of the Committee, may invite observers from SC/ST and minority communities or any other person of repute to instill confidence in the minds of the candidates and of the Institute community.

9. On advice of the Director, the Chairman, ACoFAR will seek from the Departments the specific specializations where new faculty is to be recruited. The HoDs will consult senior faculty colleagues and prepare the proposals to the Institute, which will be collated by the Chairman, ACoFAR and placed before the Director for approval. The Director is expected to review the proposals critically and finalize the draft advertisement including specializations, critical dates, newspapers of advertisement and other details.

10. Serving regular faculty members shall be eligible to apply for higher positions in their own departments irrespective of their specializations, if they satisfy other advertised criteria.

11. Application may be received on paper, on-line or both, depending on the technological resources of the respective Institute. In addition, the Institute will consider applications received against standing advertisement, if any, and unsolicited applications.

12. While applications received within the advertised closing date shall definitely be considered, late applications (upto the interview time) may be considered at the discretion and convenience of the administration.

13. In addition to the advertisements, all sections of the institute administration - Director, members of ACoFAR, HoDs and all faculty members will make proactive effort to attract applications from prospective candidates, without making any commitment of selection. Such efforts will include postal and email correspondence, telephonic talks and public announcement when there is an opportunity.

14. Applications, when received, will be organized, relevant information summarized, and sent to the departments by the Registry, for short listing. The objectives of short listing are two folds:-

    (a) to reject applications that do not meet advertised criteria and
    (b) to select the best candidates from the remaining list so that the member of candidates to be called for interview with the experts remains within manageable limits.

15. Departments will make attempt to set "short listing criteria" that can be easily implemented. But, considering the multiple attributes that need to be considered, it may become necessary to make case by case exceptions. In all such cases the general short listing criteria and the reasons for exception, if any, are to be recorded in writing. Short listing criteria may include, among others, such conditions as:

(i) superior academic record – all through first class career or higher grades in B.Tech/M.Sc/M.Tech, higher than advertised criteria,
(ii) reputation of institutions from where the candidate has obtained his degrees,
(iii) number of unsuccessful attempts for the same post [Candidates who have been rejected in the past may be called only if there is a good reason, the reason to be recorded in writing.]
(iv) specialisation, including micro specialisation,
(v) professional service record - reputation of organization where experience has been earned, nature of job, current activities etc.

16. The Departments' recommendations shall be placed before the Director for the final short-listing. The final list of candidates to meet the Selection Committee will be arrived at in a combined meeting of the Director, the ACoFAR, the HoD and at least three senior faculty members of the Department. In case of a lack of unanimity among the members, the director's decisions shall be final for the purpose of calling a candidate to the interview. The different viewpoints, however, will be recorded in writing and placed before the selection committee who may record their own comments for information of the BOG. The decision of the Board on the selection shall be final and binding.

17. In addition to formal application, candidates will be required to submit reprints/preprints of publications and list of referees. The PIC will organize collection of references and review of publications by independent referees for short listed candidates, both internal and external.

18. The short listed candidates will be invited by the Chairman, ACoFAR or the Registrar for personal interview with the selections committee constituted in accordance with the NIT Act and the statutes of the respective institutes. In addition, the individual institutes may seek seminar presentation in the departments, and/or any other form of academic interaction with the faculty. All such interaction will be open to the faculty and students of the institute and will be well publicized in advance to invite a decent audience. The feedback of the faculty will be communicated to the selection committee by the HoD. Candidates located outside the country or otherwise not in a position of attending personal interview, may be interviewed over video conferencing or be selected in absentia at the discretion of the selection committee.

19. On completion of the interview, the selection committee will record its final recommendations with signature of every member present. The Director, as chairman of the committee will be responsible for writing the recommendation. There shall be no scope for retaining individual view points or details of discussion. Any member(s) with a dissenting opinion may, however, record their observations. On a separate page(with a reference in the main page that will be presented by the Director to the BoG with his own comments on the observations.

20. The Selection Committee shall employ the same yard stick to evaluate all candidates for a post or AGP – external, internal, with or without a clear vacancy, and shall prepare a common panel of recommended candidates. Out of this panel, the vacant posts will be filled on the basis of merit without consideration of external or internal candidates.

The Selection Committee, at its discretion, may recommend to retain the panel for a maximum period of one year or next round of selection for the department, whichever comes earlier, so that vacancies caused during this period can be filled in order of merit. On completion of this period, only the internal candidates will be given promotion under CAS to be adjusted against future vacancies caused by retirement, resignation or creation of new posts, any time in future.

21. Recommendations of the selection committees will be placed before the BoG, along with details of sanctioned posts, reservation categories etc, for final approval and subsequent issue of appointment orders by the Registrar.

22. If a meeting of the BoG is not scheduled within a short period from the meeting of the selection committee, the director, with approval of the Chairman BoG, may seek the approval of members by circulation. While recommendation of the selection committee is awaiting approval of the BoG, the director may, at his discretion, inform successful candidates, but with a clear line stating that such information is awaiting approval of competent authority and is not legally binding.

23. All appointments - regular, internal or external, will be effective from the date of the Board meeting or any later date fixed by the Board. There shall, however, be no pre-dating of an appointment.

*_*_*_*_*_*

Distribution of Faculty Posts among Departments

Every institute shall have only a finite member of faculty posts sanctioned by the ministry. The distribution of these positions among the departments will be flexible to dynamically maximize the number of faculty in position at any given time. It should be appreciated that institutes will be losers and the cause of education will be hampered if faculty positions which could be filled up in other departments are kept vacant simply because current market scenario is making faculty unavailable in a specific department. Instead of keeping vacant positions, if additional faculty are inducted in other departments, they will contribute to (a) elective courses in teaching, particularly those electives that are subscribed to by students across many departments, (b) research, (c) continuing education, (e) institute, hostel and SAC management etc. A vacant faculty post serves no one. At the same time, it is the responsibility of the Director, and of the Board, to ensure that no department starves of faculty when candidates are available and posts are used up elsewhere.

The following table may be taken as a guide for computing "normal faculty strength" in any department.

B Tech Programme (Annual Intake < 50)	= x
B Tech Programme (Annual Intake > 50)	= 1.5 x
Dual degree with existing M. Tech. specialization	= 0.1 x
Dual degree with exclusive M. Tech. specialization	= 0.2 x
Additional B Tech Programme(Each programme)	= 0.5 x
M Tech programme(Each programme)	= 0.5 x
M.Sc. (2 years) programme	= 0.5 x
M.Sc (5 years) programme	= x
MBA Programme (Annual Intake <50)	= x
MBA programme (Annual Intake >50)	= 1.5 x
MCA (3 Years) Programme	= x
Common theory courses for 1st & 2nd years (per subject)	= 0.2 x
Common practical courses for 1st & 2nd years (per course)	= 0.1 x
Total	**= nx**

x = [Sanctioned faculty strength] ÷ n

The normal strength of every department shall be computed based on the above scheme, additional factors taken into consideration, rounded and approved by the Institute Senate to serve as a guideline for all future recruitment. In case of serious disagreement among members the Senate, the decision of the BOG shall be binding.

The above prescription is based on a principle of equal sharing of teaching responsibility among all faculty members irrespective of rank. In contrast with the prescription of AICTE, professors of NIT are expected to take up a larger share of the teaching job, particularly in large classes and in common fundamental subjects. This principle has the merit of providing better education in basic subjects, It frees younger faculty to pursue research, particularly those who are enrolled in Ph.D programmes.

Experienced faculty are also expected to spend less time in prepaing for classes and spend the rest of the time in institute management.

Additional factors shall include, but will not be limited to, expected student strengths in common courses, open electives, being normally offered by the department, common subjects among M Tech specializations, strength of M Tech courses etc. In general, departments and centers can be classified into two or three groups depending on the above formula and faculty strength calculated for each group.

*_*_*_*_*

Adjunct, Honorary, Chair, Emeritus, Contractual, Visiting, Ad hoc and Temporary Faculty

In addition to its regular faculty, an institute may augment its intellectual capital by hiring additional scholastic resource through different types of secondary faculty positions. Such faculty members contribute significantly to the department in terms of sharing teaching tasks and enhancing research out put. Academic contributions and decisions (e.g award of grades) of such faculty members shall have the same legal validity as those of regular faculty members. The primary purpose of hiring adjunct, honorary, chair, emeritus and visiting faculty is to receive the honor of hosting distinguished professionals and academicians, and not off-loading of routine teaching activity. In contrast, the primary purpose behind hiring ad hoc, temporary or contractual faculty is to provide routine teaching services, particularly when adequate number of regular faculty are not available.

The appointing authority of adjunct, honorary and chair professors shall be the senate while that for emeritus professors and contractual faculty shall be the BOG considering that in the latter case Government money needs to be spent on salary. Director may appoint ad hoc and temporary faculty, who need to be given appointment at short notice and do not constitute a long term responsibility of the institute. The following guidelines will given the administrative details of hiring additional faculty.

Adjunct Faculty

Reputed scientists, engineers, physicians, advocates, artists, civil servants, bankers and other professionals, both serving and retired(from active service), can be inducted as Adjunct faculty. They will bring reputation to the institute, add valuable expertise and practical knowledge and complement the knowledge pool of existing faculty. The following will be some broad guide lines for selection of adjunct faculty.

(i) They must be persons of repute, comparable to at least the top one third of the regular faculty in professional expertise and reputation in their own fields and organizations.

(ii) Adjunct faculty will supervise student projects at all levels - UG to Ph.D., carry out sponsored research and consultancy, and teach courses, all these activities either independently or in collaboration with a regular faculty. They may also be members of departmental committees, if their professional experience becomes useful. While teaching courses, they may take responsibility of a full semester-long course or only a part thereof in collaboration with a regular faculty. The degree of involvement will be worked out mutually by the adjunct faculty and the Institute.

(iii) Adjunct faculty will be appointed by the senate on recommendation of a committee headed by the director. Duration of appointment shall be between 1 and 5 years.

(iv) Adjunct faculty will be provided with office room, secretarial services and other facilities depending on their involvement in academic activities.

(v) They shall receive no salary, fee nor any other compensation for their services. All direct expenses such as travel, accommodation, preparation of lecture material etc shall be reimbursed at actuals.

(vi) Adjunct faculty may receive financial support at the discretion of the director to attend conferences in India or abroad for presenting their work done in the institute, if in the opinion of the director, he has contributed significantly to the institute's academic programme.

Honorary Faculty

Institutes may honour distinguished academicians including its own retired faculty members by conferring on them the status of "Honorary Faculty". This status will be same as adjunct faculty except that:-

(i) Honorary faculty will be drawn from distinguished persons retired from active service, including the Institute's own retired faculty, who commit to be engaged in substantial scholastic activity using facilities of the Institute and contribute academic services to the institute without compensation.

(ii) Duration of appointment shall be "for 5 years" or "for life".

(iii) Directors of institutes appointed by the visitor in accordance with the provisions of NIT Act and statutes will automatically be "Honorary faculty for life" on completion of their tenure of service, irrespective of their level of engagement in institute activity in future.

Chair Professors

The Board may create a position of chair professor in a given department with or without a fixed specialization from money donated by an external agency or person. If sufficient funds are available to pay full salary and other benefits from the interest money, a new faculty post with terms identical to regular posts may be created. On the other hand, if limited funds are available, an existing regular faculty position or a secondary position under adjunct, honorary, visiting or contractual categories may be declared as an external chair where the donation received from the external agency will provide such benefits as top-up salary, travel grant or any other benefit to the incumbent.

Professor Emeritus

Faculty superannuating from service in NITs and comparable institutions may be inducted by the Board as Professor Emeritus for a maximum period of 3 years. This provision is limited to faculty with suitable externally sponsored projects or comparable activities, in addition to shouldering normal teaching responsibilities. Such appointment shall be made against sanctioned faculty posts only.

Faculty on Contract

When regular faculty positions cannot be filled, to Board at its discretion, may fill up sanctioned faculty positions "on contract", where the terms of separation will be far easier than those of regular faculty. Other facilities and mode of selection, to the extent possible, will be same as those for regular faculty. Examples of contractual faculty will include Assistant Professors without Ph.D. degree under the 3 tier system or Assistant Professors during the first 3 years after Ph.D. under the 4 tier system, faculty considered in absentia, and distinguished professors and engineers/scientists who have retired from other organisations.

Visiting Faculty

Academic personnel from universities, institutes, R&D labs, industry or Government in India or abroad, including those on sabbatical leave from other institutions or retired, may be inducted into the institutions for brief periods (Maximum 2 years), with or

without remuneration. Such faculty members are expected to work full time taking academic responsibilities at par with regular faculty members. They may be appointed by Director on recommendation of the Head of the department, and a counterpart faculty member in the department who will serve as a host. Visiting faculty may be provided with mutually agreed honorarium and facilities (e.g. residential accommodation) on discretion of Director.

Ad. hoc appointments

To meet urgent need of faculty or to retain a brilliant candidate, the Director is empowered to make ad hoc appointment against sanctioned posts at all levels. Such appointment can be done for a maximum duration of 12 months, and shall not be extended even with breaks. A reasonable pay band, pay and AGP may be worked out, and increment may also be given as per rules. This pay shall not be binding on the selection committee, which may make its own decision, the formal appointment, if at all, shall carry its own pay unrelated to the ad hoc pay. Facilities such as residential accommodation, travel etc, normally available to faculty members, may be extended at discretion of Director. The director will make his decision basing on the recommendation of a small committee of senior faculty colleagues which will include at least one internal Board member, and one external subject expert. A Ph.D. degree with a superior academic career is a minimum requirement for ad hoc appointment at Assistant Professor level. Commensurate work experience in institutions of repute is necessary for higher posts.

Temporary Faculty

The director may recruit "Temporary faculty" against sanctioned posts to tide over serious shortage of faculty to handle UG & PG teaching load. This will be possible only in departments where the number of faculty in position, not counting teachers on long leave, is below 0.75 x normal strength. The candidates need to have at least a Master's degree in Engineering or a doctorate in science/humanities with first class [60% marks or (GPA 6.5/10)] at both bachelor's and master's level. Selection can be made on recommendation of a committee of faculty members that must include at least one internal board member and one faculty member of another department. Presence of an external subject expert is not essential.

Duration of appointment shall be one semester to start, and may be extended on semester to semester basis on recommendation of the HOD. Maximum duration of appointment in the entire career of a person shall be limited to 5 semesters. A consolidated remuneration, proportional to the assigned duties may be worked out on mutual agreement. The temporary faculty may be permitted to work full time or part time depending on the remuneration paid to him. In addition to the consolidated remuneration, director may, at his discretion, extend residential accommodation, telephone, travel and other facilities.

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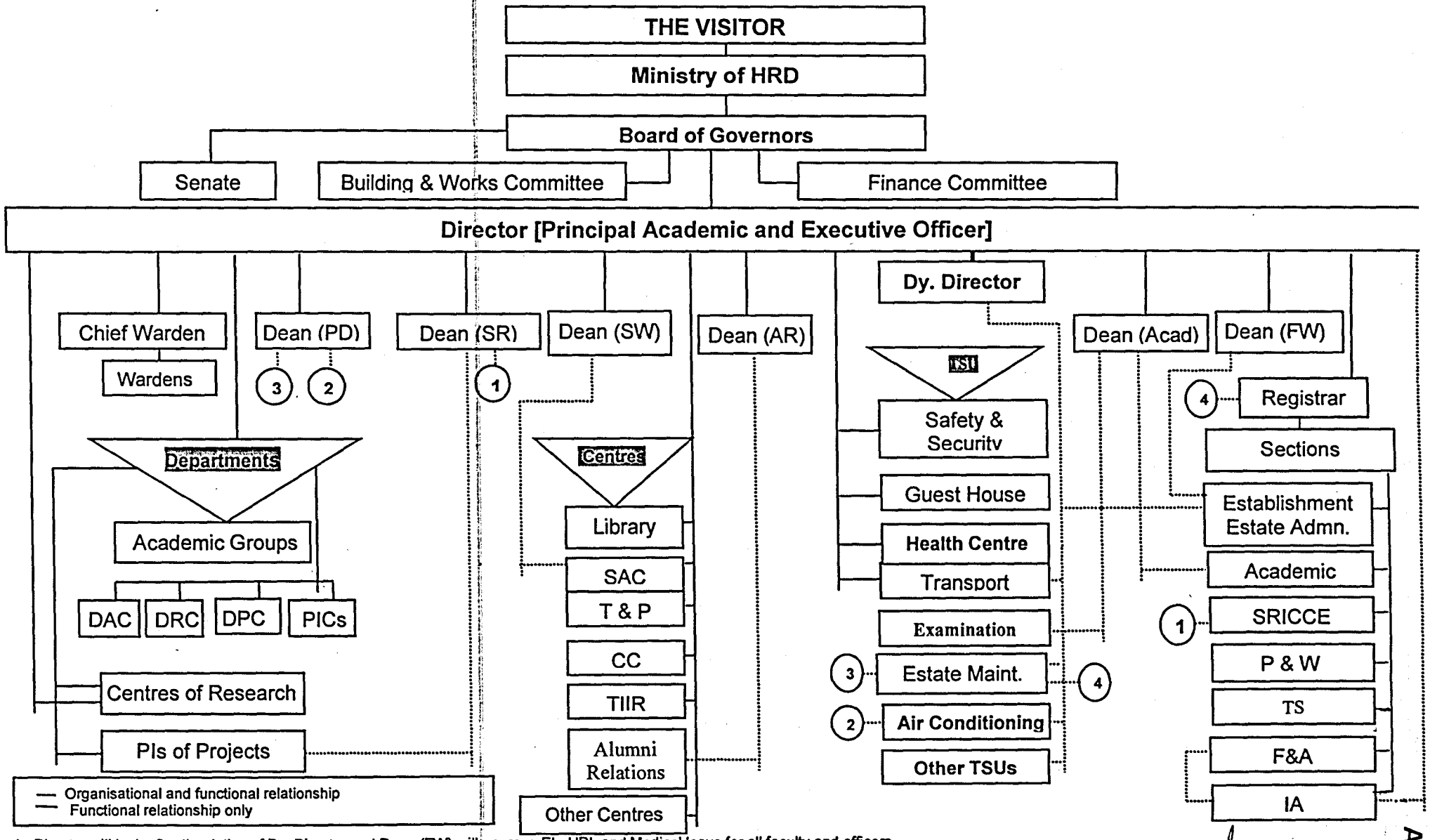
Organisation Structure of NIT, Rourkela



* Director will look after the duties of Dy. Director and Dean (FW) will approve EL, HPL and Medical leave for all faculty and officers except Dy. Director, Deans, HODs, Chief Warden, Registrar for one year or till Dy. Director is appointed which ever is earlier

** Chairman, BOG at his discretion, may consider approval on behalf of the Board when BOG is not scheduled to meet in near future.

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Table 1: Technical Service Units (TSUs) at NIT Rourkela: Administrative arrangement, subject to change as per need and availability of resources, on approval of Director.

Sl. No.	Name of TSU		OIC	HOD	Stock Registers	Committee (C) and Dedicated Staff (S)
	Short form	Long form				
1.	HC	Health Centre	Sr. MO	Director	EQ,CM, PR, DP	S
2.	SS	Safety & Security Unit	SO	Director	DP	C, S
3.	GH	Guest House	Manager	Director	EQ,CM, PR, DP	C, S
4.	EM	Estate Unit (Civil & Electrical)	EU (C/E)	Dean(PD)	EQ,CM, PR, DP	C, S
5.	CS	Civil Construction Unit	PIC	Dean(PD)	DP	C, S
6.	ES	Electrical Construction Unit	PIC	Dean(PD)	-	C, S
7.	CA	Central and distributed Air-conditioning Unit	PIC	Dean(PD)	EQ,CM, PR, DP	C, S
8.	TN	Telephone Network	PIC	Dean(PD)	EQ,CM, PR, DP	S
9.	CF	Common class rooms & facilities (including projection equipment)	PIC	Dy. Director	EQ,CM, PR, DP	C
10.	BS	Academic Building Maintenance Unit (Including cleaning, water fountains & sanitary services)	PIC	Dy. Director	-	C
11.	LG	Lawns, Gardens & Plantation	PIC	Dy. Director	-	C
12.	TS	Transport Services	SO	Director	CM, DP	S
13.	FR	Furniture Procurement & Maintenance	PIC	Dy. Director	-	C
14.	CA	Central Auditoriums & Related Facilities	PIC	Dean(SW)	-	-
15.	CB	On Campus Business	PIC	Dean(SW)	-	C
16.	CM	Community Centre	PIC	Dy. Director	-	C
17.	WP	Places of Worship	PIC	Dy. Director	-	C
18.	PB	Institutional Information & Publicity	PIC	Dy. Director	-	C
19.	OA	Office Automation & Web Site	PIC	Dy. Director	-	C, S
20.	CV	Convocation	PIC	Dean(AA)	CM, DP	C
21.	EQ	Major Equipment Management	PIC	Dy. Director	-	C
22.	BP	Book Purchase by Students	PIC	Dean(SW)	-	-
23.	SM	Institute Seminars & Distinguished Visitors	PIC	Dean(SW)	DP	-
24.	RP	Research Promotion & IPR	PIC	Dean(SR)	-	-
25.	TX	Technical Excellence (NITRITE, NITRIIB)	PIC	Dean (SW)	-	-

EQ: Equipment Register; **CM:** Consumable Register; **DP:** Direct Purchase Register; **PR:** Procurement Register; **S:** Own Staff; **C:** Committee; **PIC:** Faculty/Officer in-charge; **OIC:** Operation-in-Charge.

* Director will look after the duties of Dy. Director and Dean (FW) will approve EL, HPL and Medical leave for all faculty and officers except Dy. Director, Deans, HODs, Chief Warden, Registrar for one year or till Dy. Director is appointed which ever is earlier

** Chairman, BOG at his discretion, may consider approval on behalf of the Board when BOG is not scheduled to meet in near future.

National Institute of Technology, Rourkela

Report of the BOG Sub-Committee on Organization Structure:

A Sub-Committee of the Board of Governors was constituted vide resolution No BOG-30(2012)-10 dated 29.06.2012 to discuss and recommend an organization structure for the institute. The committee held several meetings and submitted its recommendation to the Board in its 39th meeting held on 15th February, 2014 at NIT Transit House New Delhi. This report presents the recommendations modified in accordance with the deliberations and resolutions of the Board.

Constitution of BOG sub-committee

1.	Prof. Rintu Banerjee	– Chairperson
2.	Dr. R. K. Bhandari	– Member
3.	Prof. R. K. Patel	– Member
4.	Mr. S. K. Upadhyay	– Member Secretary

The committee received a draft document entitled "A Management model for NIT Rourkela" prepared by the Director. The first task of the committee was to examine its compliance with the NIT Act 2007 and the Statutes of the Institute. The report has no conflict with the Act or the Statutes.

Then the committee worked on possible improvements on the operational aspects of the scheme and made some changes. It was discussed with the Director and in the BOG meeting, and the following is the final version of the document.

As per Article - 3 of the Statutes, there are **four authorities** of the institute defined as follows:

- The **Board of Governors** as constituted under section 11 of the Act
- The **Senate** as constituted under section 14 of the Act
- The **Finance Committee** as constituted under the Statute No.11
- The **Building and Works Committee** as constituted under the Statute No.12

Functions of each authority are well defined in the Statutes.

Departments and Centres

For the purpose of management, the Institute is organized in terms of units and sub-units of 5 types:

- Departments
- Centres of Research (within departments)
- Academic Support Centres
- Technical Service Units
- Sections of the Registry

At present NIT Rourkela has

- 21 Departments
- 9 Centres of research and
- 6 Academic support centres
- 7 Sections of the Registry, and
- 25 Technical Service Units

The primary responsibilities of the faculty members are

- Teaching
- Research
- Consultancy
- Functional assignments for supporting institute management.

It is the discretion of the Director to select the suitable and eligible faculty member(s) and assign them responsibilities for carrying out any functional assignment for the proper running of the Institute.

As given in the NIT Act the Registrar is the custodian of all records and the funds of the Institute. He also acts as secretary (non member) of the Board and Senate and exercises powers and performs duties as are assigned to him by the Director. The Registrar shall be assisted by a team of Deputy and Assistant Registrars and ministerial staff.

The Act and the Statutes do not require the Board to assign duties and responsibilities to Deans, HODs, Registrar or other personnel of the institute. It is the prerogative of the Director, who is the Principal Academic and Executive Officer of the Institute and is responsible for the proper administration of the Institute. This makes the Board free to focus on questions of policy relating to administrative and working of the Institute, as provided in the NIT Act.

The post of Dy. Director is not same as that of the Deans, although there is a high degree of similarity. Necessary changes have been made in the organization structure to reflect this aspect. The functional relationship between Dy. Director and deans with and Registrar and Dy/Asst registrars is indicated in the organization chart. As per Clause 14 of Statute 17, Director has full authority to constitute any committee as per the need. The Director is encouraged to form committees of faculty, officers and staff as he thinks fit to ensure smooth administration.

As far as the four TSUs – the Guest House, Safety & Security, Transport and Health Centre are concerned, the committee discussed the matter and its related problems at a stretch and came to the conclusion that Dy. Director should be made responsible for supervision of all such activities and work under the directions of the Director. In the absence of Dy. Director, the Director should personally take the responsibility of these four units. The concerned officers and staff responsible for management of these units will report directly to the Director till such time the deputy Director is positioned. The above arrangement will be reviewed after one year. The Board advised Director not to appoint a PIC for these four TSUs.

It is the Director who is accountable for day to day operation to Government and Board. Clause 16 of Statute 17 gives freedom to the Director to delegate his authority to any of his colleagues with concurrence of the Board. The Committee on organization structure encourages Director to delegate more responsibility to senior faculty colleagues or to committees in order to ensure more collective administration. Some of it are already done by the Director and given in the attached document. Duties and responsibilities of each HOD, Chairman of different committees and PICs are to be defined and circulated by the Director in the institute level. For Central Workshop, the status-quo of the department should be maintained. The complete organizational structure, revised in accordance with the decisions of the Board is given in the Annexure.

Ordinances- As per the Act and Statutes both administrative and academic ordinances are required to be prepared. It is proposed that a committee may be constituted for preparation of administrative and academic ordinances for NIT Rourkela.

Annexure: A Management Model for NIT Rourkela

Rintu Banerjee 26/2/14
(Prof Rintu Banerjee)
Chairperson, BOG Subcommittee on Organization Structure of the Institute
NIT Rourkela

National Institute of Technology Rourkela

A Management Model for NIT Rourkela

1. Introduction

To function and to prosper, every institution needs a "management" or "organisation" in place. In case of NITR, the structure of the higher management is defined by the NIT Act 2007, and the statutes of the Institute, leaving the details of the junior management to the local authorities. The Director, appointed by the Visitor, is the Chief Executive Officer and is expected to be responsible and accountable to the Board, the Government, and to the Visitor for delivering the intended service to the nation. He is assisted by faculty holding statutory positions such as Deans and Heads of Departments, other faculty members and full time officers. The faculty and officers also assist the Director, Deans and HODs through a set of formal committees whose structures and tenures have been explicitly defined by the BOG and documented for reference. Often, but not always, an HOD or a professor in charge of a TSU is the Chairman of a committee looking after the affairs of the activity.

The word used here is "management" in contrast with "administration". In common parlance of institutes of higher learning, management is distinguished from administration in 3 ways, though these definitions may not be lexicographically correct.

- Management is more towards growth while administration is more towards maintaining smooth, event-free operation.
- While managers are more self-driven decision makers, administrators rely more on rules, traditions and instructions of higher authorities.
- Management personnel may be drawn, when so necessary from academic stake holders, while administrative personnel are dedicated professionals trained for the job.

It must be noted that the distinctions stated above are a matter of degree, not of kind. The personnel running the affairs of the Institute, whether faculty members taking administrative roles on the side or full time officers appointed for the purpose, all shall constitute the management, shall be flexible in their approach while honouring every rule of the Institute in letter and spirit, shall be growth oriented, and most important of all, shall be self-motivated creating an environment of cooperation both laterally and vertically.

The phrases "Institute Administration" and "Local Administration" shall represent all operating personnel working on campus, i.e. the Director, the faculty and the officers, thus distinguishing them from the higher authorities – the BOG, the Ministry and the Visitor. The Institute Administrators, of course, do "management", not "administration", when seen in light of the discussion in paragraphs above.

Clarity of command line and of administrative relationship is essential for successful operation of any organisation. The objective of this document is to define the administrative structure, the personnel involved, authority, accountability, financial issues and records to be maintained.

2. Basic Administrative Frame work

For administrative purposes, the Institute is organised in terms of a set of departments, centres, offices and TSUs (Technical Service Units). While the first two terms are commonly used in all institutions of higher learning, the latter two are less known and will be articulated later in this document. The Director, as the Chief Academic and Executive Officer of the Institute, is assisted by the Deputy Director (when appointed in future), the Registrar, the Deans, Associate Deans (if such positions are created in future), Heads of Departments and Centres and PICs of various TSUs.

A department is an academic cum administrative unit consisting of faculty with common background and specialisation. The Central Workshop is a department where the faculty are drawn from other departments on approval of Director. Similar arrangement is also followed for some other units of the Institute, e.g. SAC and some TSUs. Normally a department is organised in terms of "academic groups", each group containing three to five faculty members with common academic and research interest. In formative years, academic groups may consist of less number of faculty members. Every member of the faculty must belong to one, and only one, academic group. All resources and responsibilities of a department are divided among academic groups, and group in-charges are accountable to the HOD. In addition, the HOD creates departmental committees and appoints PICs to look after departmental affairs. Major departmental committees include the Departmental Academic Committee (DAC), Departmental Research Committee (DRC) and Departmental Purchase Committee (DPC). Other Departmental functionaries include PICs of seminars, information and maintenance. Normally departmental affairs including creation of committees and appointment of PICs are handled by the HOD with assistance of senior faculty; but in extreme cases the Director may intervene if he feels it necessary in the interest of the Institute.

A "Centre of Research" is either a subset of a department or an inter-departmental unit dedicated to research in a specific area or to another academic activity not directly related to award of degrees. Such a centre is necessarily hosted by a parent department and functions within its academic framework while enjoying substantial autonomy in its assigned function. It is like a club of faculty members with common research interest who pool their resources to be more productive. Faculty and students associated with centres of research hold common seminars, submit joint research proposals and share each other's responsibility at times of need. The centre may have a tiny office, a dedicated fully equipped seminar room, a notice board, a web page in the Institute web site, but not much else. The Institute supports faculty and laboratories associated with

these centres to a degree greater than other activities in terms of equipment and technical man power.

In many institutes there are inter-disciplinary research centres that are more like departments except that they do not offer UG programmes. They often have their own buildings and offer own PG programmes, the heads of the centres reporting directly to the Director of the Institute. Experience of IITs has shown that such an arrangement is not considered healthy for the overall academic life of an institute and such centres are not envisaged to be set up at NIT Rourkela.

An Academic Support Centre, such as the Library or the T&P Centre, is an independent unit without pedagogic activity but offering significant support service to the Institute as a whole. They perform essential quasi-academic functions and are normal constituents of institutions of higher learning.

While the actual academic or support activity is performed by a Department/Centre/TSU, the higher layer of management support is provided by the Registry headed by the Registrar. He is assisted by a set of Deputy and Assistant Registrars, each of whom heads a section or an "office". For example, the Academic Section headed by the DR/AR (Acad) administers all academic issues related to curricula and syllabi, instruction and monitoring, examinations, grades and results. The P&W section supports the purchase and works activities by departments, centres and TSUs by authenticating the recommendations against the rules and handling all commercial terms with the contractors, transporters and insurers as well as all commercial issues related to taxes and duties.

Apart from teaching, research and extracurricular activities, an institution of higher learning requires a variety of services - maintenance of class rooms, lawns and gardens, guest house, telephone service, etc. Each of these support services is termed as a "technical service" and the people providing this service constitute a "Technical Service Unit (TSU)". While the operation layer of the service under "technical services" is provided by the TSUs, the higher layer of the management such as posting of advertisements, award of contracts, scrutiny of documents, maintenance of permanent records, processing of bills before payment etc. for all services is handled by the concerned Assistant Registrar assisted by the Technical Services Section of the Registry.

Every department or centre shall have the following administrative resources.

- The Head of the Department appointed by the Director as per statutes,
- An office with at least one ministerial staff,
- An allocated budget,
- A purchase committee, an academic committee (DAC) and the department academic research committee (DRC),
- Faculty in charge of various other functions as assigned by the HOD, and
- A set of stock registers and a procurement register.

This structure is not strictly applicable to TSUs; but TSUs also need a comparable administrative system, a clean command line, a pre-defined budget, personnel, accountability and pre-defined relationship among its constituents.

In a university of a developed country or even in some private universities in India, there is a well-established bureaucracy and support structure to provide services, so that the faculty spends all its time on research and teaching. Needless to say, that is the most ideal way of running a university, to achieve optimal utilisation of scarce intellectual resources. The model, however, has been tried and has visibly failed in Indian public universities. One can argue on the reasons and circumstances of this failure; but one thing is true – there is no example of a publicly funded university in India where all, or almost all, services are made available to the faculty without its own involvement. In contrast, Indian universities, specifically the IITs, have evolved a management paradigm, which has been successful in providing a decent though not an ideal work environment to those institutes. The management model proposed below for NIT Rourkela is based upon, though not identical to, this model. The following are the main features of NITR's strategy for providing technical services.

Apart from the faculty, the Institute appoints a set of officers – Librarians, Scientific and Technical Officers, Doctors and Engineers. The number of these officers, however, is well below the number required, particularly considering the procedural requirement of a Government organisation and the staff sanction policy of the Government. The Institute supplements the available strength of dedicated officers with part time services of its faculty and technical staff, at all levels. Apart from providing the required management manpower, this system of participatory management inspires confidence among the faculty and staff.

In this system, every such activity, called a technical service (TS) is handled, fully or partially, by one or more faculty members or officers. In some cases, they are associated by dedicated professional staff, if available. The faculty members get designations such as Dean, Associate Dean, Professor in Charge (PIC) or Committee member or often have no designation.

A Technical Service Unit (TSU) is normally headed by a designated functionary - PIC or Associate Dean [when such positions are created by the Board in future], who will work under the guidance of a Dean or the Deputy Director. Supporting staff for the TSUs are drawn from administrative units, e.g. Health Centre, Estate Unit, Safety & Security Services, to the extent available. The rest of the required personnel are drawn from the faculty and technical staff of the Departments, Centres and other services on part time or full time basis. These faculty and staff members, while retaining normal organisational relationship with their parent departments, maintain a functional relationship with their supervisors in the TSUs. Such relationships, of course, are limited to assigned duties and durations of the job.

Ministerial services for the TSUs are provided by the PIC's own department. In rare cases, when the volume of ministerial service required is large and beyond the scope of the host department, the PIC may hire the service from the market or be provided explicitly by the Registry.

3. Departments and Centres

For the purpose of management, the Institute is organised in terms of units and sub-units of 5 types: Departments, Centres of Research (within departments), Academic Support

Centres, Offices or Sections of the Registry, and Technical Service Units (TSU). At present, NITR has 21 Departments, 9 Centres of Research, 6 Academic Support Centres, 25 TSUs and 7 sections of the Registry. They are:

Departments:

1. Biotechnology & Medical Engineering (BM)
2. Ceramic Engineering (CR)
3. Chemical Engineering (CH)
4. Chemistry (CY)
5. Civil Engineering (CE)
6. Computer Science & Engineering (CS)
7. Electrical Engineering (EE)
8. Electronics & Communication Engineering (EC)
9. Humanities & Social Sciences (HS)
10. Industrial Design (ID)
11. Life Science (LS)
12. Mathematics (MA)
13. Mechanical Engineering (ME)
14. Metallurgical and Materials Engineering (MM)
15. Mining Engineering (MN)
16. Physics and Astronomy (PH)
17. School of Management (SM)
18. Central Workshop (WS).
19. Planning and Architecture (PA)
20. Food Process Engineering (FP)
21. Earth & Atmospheric Sciences (EA)

Centres of Research [Host Department]:

1. Centre for Industrial Electronics & Robotics– ER [EE]
2. Centre for Industrial Refrigeration & Air conditioning– RC [ME]
3. Centre for Cryogenic & Superconducting Engineering – SE [ME]
4. Centre for Development of Nanomaterials – NM [CR]
5. Steel Research Centre – ST [MM]
6. Tissue Engineering Centre – TE [BM]
7. Centre for Renewable Energy Systems – RE [EE]
8. Centre for Computer Vision & Pattern Recognition – CV [CS]
9. Laxman Rao Peri Centre for Advanced Analytics & Decision Sciences – LP [CS]

More centres of research are proposed to be added with time as faculty gains more experience and confidence. The Board shall create more such centres when the critical volume of expertise and experience are available in the Institute. Some of these centres are recognised as "centres of excellence" by external funding agencies. Among them are the following:

1. Tissue Engineering Centre – TE [BM] – recognised by TEQIP
2. Centre for Renewable Energy Systems – RE [EE] - recognised by TEQIP
3. Centre for Orthopaedic Tissue Engineering, a part of the Tissue Engineering Centre of the Institute – recognised as COE by MHRD under FAST programme

In due course other centres are expected to be recognised as centres of excellence by external agencies such as MHRD, DST, DBT, BRNS, ISRO etc. The Institute, however,

has no scheme of declaring any centre of research as a centre of excellence, because the Institute's target is to achieve excellence in every field of effort.

Academic Support Centres:

1. Biju Patnaik Central Library – BPCL
2. Computer Centre – CC
3. Training & Placement Centre – TP
4. Student Activity Centre – SA
5. Centre for Alumni Relations – AR
6. Centre for Technology Innovation and Industry Relations (TIIR) – TR

4. Technical Service Units (TSUs)

An institution of higher learning requires many services to function. Some are common across many Institutes, while some are unique to a particular institution depending on its historical and social traditions. At NIT Rourkela, these services are provided by a set of Technical Service Units (TSUs), which may have their own full time staff or are managed by drawing staff from departments and centres at both management and worker level, the latter being the rule rather than exception. The word "Technical" in "Technical Service" should be interpreted in generic term, instead of being associated with a vocational trade. A list [not exhaustive] of technical service units (TSUs) and their management attributes are listed in the table below. Additional TSUs can be created and listed ones can be reorganised at the discretion of the Director.

The PICs or Associate Deans will have the status of HOD in their respective TSUs. Some of the TSUs will be issued procurement and stock registers, or only the direct purchase registers as per Table-1 of this document, which can be amended from time to time on approval of Director. The Technical Services Section of Registry will provide support to all TSUs just as the P&W and Establishment Sections support the Departments and Centres without taking over their work.

The Institute will appoint PICs (or Associate Deans in future) and technical staff on additional charge basis for the TSUs, on approval of Director. Normally both the PIC and the technical staff will spend a reasonable fraction of their time on the work of TSUs, doing operation and maintaining records. The PICs will remain fully accountable to the supervising deans and higher authorities for their administrative and financial decisions and maintenance of records. Wherever necessary, the Department of the PIC will provide, on priority basis, the ministerial and technical services required by a PIC or Dean belonging to that department. The HOD may seek additional funds and/or manpower from the Institute funds, but the extension of facilities will not wait for sanction of this fund.

All Departments, Centres and TSUs will be routinely monitored by the Institute's Internal Audit unit for examination of records and for physical verification of fixed assets if any. They will also be subject to CAG audit. All HODs and PICs will be fully accountable to the Institute management for their administrative and financial actions, or inactions. PICs and technical staff looking after TSUs are not entitled to any supplementary remuneration. Their accountability to the Institute shall be at the same level as that for the work of the parent department.

Table 1: Technical Service Units (TSUs) at NIT Rourkela: Administrative arrangement, subject to change as per need and availability of resources, on approval of Director.

Sl. No.	Name of TSU		Head of the unit	Overall supervision		Stock Registers	Committee(C) and Dedicated Staff (S)
	Short form	Long form		Permanent	Till DD is appointed		
1.	HC	Health Centre	Sr. MO	Dy. Director	Director	EQ,CM, PR, DP	S
2.	SS	Safety & Security Unit	SO	Dy. Director	Director	DP	C, S
3.	GH	Guest House	Mana ger	Dy. Director	Director	EQ,CM, PR, DP	C, S
4.	EM	Estate Unit (Civil & Electrical) Maintenance	EU (C/E)	Dean (PD)	Dean (PD)	EQ,CM, PR, DP	C, S
5.	CS	Civil Construction Unit	PIC	Dean (PD)	Dean (PD)	DP	C, S
6.	ES	Electrical Construction Unit	PIC	Dean (PD)	Dean (PD)	-	C, S
7.	CA	Central and distributed Air-conditioning Unit	PIC	Dean (PD)	Dean (PD)	EQ,CM, PR, DP	C, S
8.	TN	Telephone Network	PIC	Dean (PD)	Dean (PD)	EQ,CM, PR, DP	S
9.	CF	Common class rooms & facilities (including projection equipment)	PIC	Dy. Director	Dean (SR)	EQ,CM, PR, DP	C
10.	BS	Academic Building Maintenance Unit (Including cleaning, water fountains & sanitary services)	PIC	Dy. Director	Dean (SR)	-	C
11.	LG	Lawns, Gardens & Plantation	PIC	Dy. Director	Director	-	C
12.	TS	Transport Services	SO	Dy. Director	Director	CM, DP	S
13.	FR	Furniture Procurement & Maintenance	PIC	Dy. Director	Director	-	C
14.	CA	Central Auditoriums & Related Facilities	PIC	Dean (SW)	Dean (SW)	-	-
15.	CB	On Campus Business	PIC	Dean (SW)	Dean (SW)	-	C
16.	CM	Community Centre	PIC	Dy. Director	Dean (FW)	-	C
17.	WP	Places of Worship	PIC	Dy. Director	Dean (FW)	-	C
18.	PB	Institutional Information & Publicity	PIC	Dy. Director	Dean (AR)	-	C
19.	OA	Office Automation & Web Site	PIC	Dy. Director	Director	-	C, S
20.	CV	Convocation	PIC	Dean (AA)	Dean (AA)	CM, DP	C
21.	EQ	Major Equipment Management	PIC	Dy. Director	Director	-	C
22.	BP	Book Purchase by Students	PIC	Dean (SW)	Dean (SW)	-	-
23.	SM	Institute Seminars & Distinguished Visitors	PIC	Dean (SW)	Dean (SW)	DP	-
24.	RP	Research Promotion & IPR	PIC	Dean (SR)	Dean (SR)	-	-
25.	TX	Technical Excellence (NITRITE, NITRIIB)	PIC	Dean (SW)	Dean (SW)	-	-

EQ: Equipment Register; **CM:** Consumable Register; **DP:** Direct Purchase Register; **PR:** Procurement Register; **S:** Own Staff; **C:** Committee; **PIC:** Faculty/Officer in-charge

5. The Registry:

The Registry is a major constituent of an Institute, unique to centres of higher learning. It is an administrative entity, very close in its structure to a department or a centre. It is headed by the Registrar whose position is identical to that of a HOD or HOC. He is supported by a team of Deputy and Assistant Registrars, superintendents, accountants and clerical staff. Its domain of operations spans over all units of the Institute and covers all issues related to personnel, finance and accounts, procurement and contracts and maintenance of permanent records.

These functions are to be clearly distinguished from the activities carried out by the Departments, Centres and Technical Service Units of the Institute heavingsimilar or identical description. This distinction can be articulated as follows:

While the Departments, Centres and TSUs are responsible for the activities and operations and take initiatives and decisions through the due process of law, the Registry will handle all the downstream operations, such as:

- Checking compatibility of a decision and the procedure followed with higher laws and precedence, and authenticating the decision before it is implemented,
- Handling all commercial terms and operations, wherever applicable,
- Maintaining permanent records,
- Interfacing with external agencies,
- Handling all finance, accounts and audit matters,
- Handling all personnel issues – recruitment, records, salaries, pension, leave records, pension and provident fund,
- Estate administration – land records, taxes, encroachment and eviction, electricity and water bills (collection and deposit), residential quarter allotment and rents (does not include maintenance and technical matters),
- Managing student admission and maintaining student records,
- Handling all legal matters, court cases and disciplinary issues,
- Handling internal and external mail system,
- Providing administrative guidance to implementing departments, centres and TSUs by publishing well defined regulations and guidelines.

The list of functions enumerated above is not exhaustive, but should give an understanding of the nature of the functions of the Registry. In an operation, whether it is offering a course, publishing a paper, constructing a building, managing a guest house or keeping the class rooms clean, the operation itself requires some specialised knowledge or skill, and therefore, will be the job of the concerned department, centre or TSU, while the higher end of the operation involving administrative and clerical services will remain in the domain of the Registry. Officers of the Registry will be supported exclusively by a team of ministerial staff – superintendents, accountants and assistants while departments, centres and TSUs will be supported by technicians, laboratory and technical assistants. The staff of the Registry will work from their offices and will normally not have any responsibility that requires operation in the field. The Departments, Centres and TSUs will be supported by the Registry through a small number of ministerial staff posted in the Department/Centre or TSU to maintain departmental records and to interface with it.

The Registry is organised in terms of offices or sections, each section being headed by a Deputy or an Assistant Registrar. At present there are seven sections: (1) Academic, (2) Establishment (including estate administration and legal matters), (3) Finance & Accounts, (4) Purchase & Works, (5) Sponsored Research, Industrial Consultancy & Continuing Education (SRICCE), (6) Technical Services and (7) Internal Audit. In future, depending on need, heterogeneous sections such as SRICCE and Establishment may be further divided; but that is not recommended. The Technical Services Section of Registry should be distinguished from the TSU – Technical Service Unit. While a TSU is responsible for the implementing jobs in the field, the TS section is responsible for making regulations, examining proposals, handling commercial terms and processing bills. The TS section does no field job except those of the Registry itself, e.g. procurement of stationery and printing of publications.

A section may contain one, two or more officers. When there are two or more officers in a section, the senior-most officers shall be the section-in-charge. Similarly when there is a shortage of officers, one officer shall look after more than one section, maintaining separate identity for each office. [No additional remuneration is admissible for such dual responsibility.] A section shall be further subdivided into "Groups"; a typical group being headed by a Superintendent who is assisted by one or more assistants. The senior-most superintendent may be given overall supervisory responsibility of a section.

The Registry is not expected to have any technical staff except for a skeleton staff to handle its own office equipment – computers, photocopiers, scanners and furniture. Because the skill set needed to function as a ministerial staff is common (except for accounting) across all departments and sections of the registry, they can be, and should be, transferred across desks all over the Institute, while technical staff can be transferred within a much smaller set of posts with common skill sets.

The Registrar shall report to the Director, the Chief Executive Officer; but the Registry shall not be subservient to the Director or any functional authority appointed by him in matters of rules. It has the sacrosanct duty of upholding the rule of law. It enjoys autonomy to the extent of quoting the rules and analysing every decision against them. In case of difference in interpretation of a rule, the Registry puts on record the possible alternatives, and the decision of the Director or a higher authority shall be final and binding. The Registry authenticates, but does not initiate nor approve an administrative action except for its own department. No decision of an approving authority involving personnel or finance can be implemented unless authenticated by the Registry.

A purchase or administrative proposal necessarily originates in a department chaired by a HOD or a service unit chaired by a PIC. The Registry examines it against the rules, does fund booking, adds commercial terms, obtains approval of competent authority and prepares and despatches the purchase or work order. Similarly when stores and bills are received, the stores are examined and accepted by the Department or the PIC and certified bills are sent to the Registry for further processing, maintaining records, making payment and preparing accounts statements. The key principle is that all decisions are taken by an executive (Director, Dean, Associate Dean, HOD, HOC, PI or PIC), the Registry handling the papers from that point onwards, particularly from legal and procedural angles. The Registrar, however, remains responsible for maintenance of his own Department and the Sections within it [Accounts, Academic, Establishment, Purchase & Works, SRICCE, Technical Services and Internal Audit] and functions as the Head of the Department of Registry.

6. Organizational vs. functional Relationships:

The departments and centres, as well as the Registry have a rather straight forward administrative structure. Every individual employee reports to only one authority that tells him what to do, evaluates his performance, sanctions leave and depends on him for his own performance. The situation is somewhat more complex in case of TSUs, where the personnel are drawn from departments, centres or other TSUs. An Institute employee serving a TSU has, in most cases, dual affiliation – one to his substantive post and the other to the assigned TSU. The former is defined as the "organisational" relationship while the latter is a "functional" relationship. Table-2 articulates most of the organizational and functional relationships between components of the Institute.

The supervisor in the substantive post will approve leave and deal with all service matters. It is, however, a matter of courtesy on the part of the employee to keep his functional supervisor informed at all times. Both supervisors, organisational and functional, as well as the employee should mutually work out the schedules of the employee in good faith and in a spirit of cooperation. In case of irreconcilable differences, they may take the help of Deputy Director and Director.

A unique scenario represents the function the two offices – Academic Section and SRICCE. The two sections are headed by officers of the Registry – Deputy or Assistant Registrars. Organisationally the two officers report to the Registrar and take instruction from him. But functionally they report to Dean (Acad) and Dean (SRICCE) respectively and implement their directions directly without routing them through the Registrar. This scenario can be seen as one where the Registry has essentially loaned the services of its officers to Dean (Acad) and Dean(SR) while still retaining administrative control over them.In a similar manner the Establishment section provides administrative support to Deputy Director and Dean (FW) in discharge of their duties in relation to personnel matters – recruitment, promotion, training, deputation etc. Deputy and Assistant Registrars will interact strongly with DyDirector and Dean (FW) to ensure smooth administration. Dy/Assistatn Registrar (TS) will provide administrative service to the deans and PICs in appropriate cases.

A similar functional relationship exists between civil and electrical engineers reporting to PICs of Civil and Electrical construction while still retaining their organizational identity within the Estate Department. The Director, at his discretion, may assign similar functional relationships for other activities, e.g. Dean (FW) supervising faculty selection or confirmation, Chairman BOT supervising PF withdrawals, PICs of civil and electrical maintenance supervising engineers in estate.

The examples given above illustrate the distinction between organisational and functional relationships. Officers and staff, while remaining within the organisational jurisdiction of their respective parent departments, functionally report to the Head of the operation unit. The situation is akin to the scenario where a firm providing outsourced service to a client places its officers at the latter's disposal while retaining organisational control over them in matters of salary, increment, leave, training etc., their day to day duties being assigned to them by the client.

Whether it is organisational or functional relationship, a supervising officer or faculty shall have the responsibility of assessing the performance of a subordinate without prejudice on the type of responsibility. Similarly, faculty and staff having supplementary

responsibilities are expected to respect all duties equally without prejudice to organisational or functional relationships.

7. The Administrative Approach:

NIT Rourkela's administrative philosophy is based on plane common sense with no unique or un-intuitive feature. Still, it needs to be articulated in this document for the benefit of new comers who are accustomed to different, often more evolved principles. The following are a few elements of NITR's administrative philosophy.

a) Every employee (Faculty, officer, technical or ministerial staff) is accountable equally for all his assignments, whether primary (e.g. teaching, research, ministerial work, lab work) or secondary (e.g. a TSU or hostel assignment). Any performance evaluation, including annual assessment, will take into account performance in all assigned responsibilities.

b) Officers and faculty constitute a class apart from the ministerial and technical staff. Their enhanced accountability is not a matter of degree, but of kind. There is quantum jump in expectation and accountability between officers and other staff. Faculty and officers are expected to be self-motivated and to take initiative. For them, while disobeying orders without recording a valid reason remains an offence, "only obeying orders" does not constitute adequate service to the Institute. Faculty and officers are expected to create their own work, and to create work for their subordinates. On the other hand, lower staff will not normally be penalized for idling after finishing assigned duties.

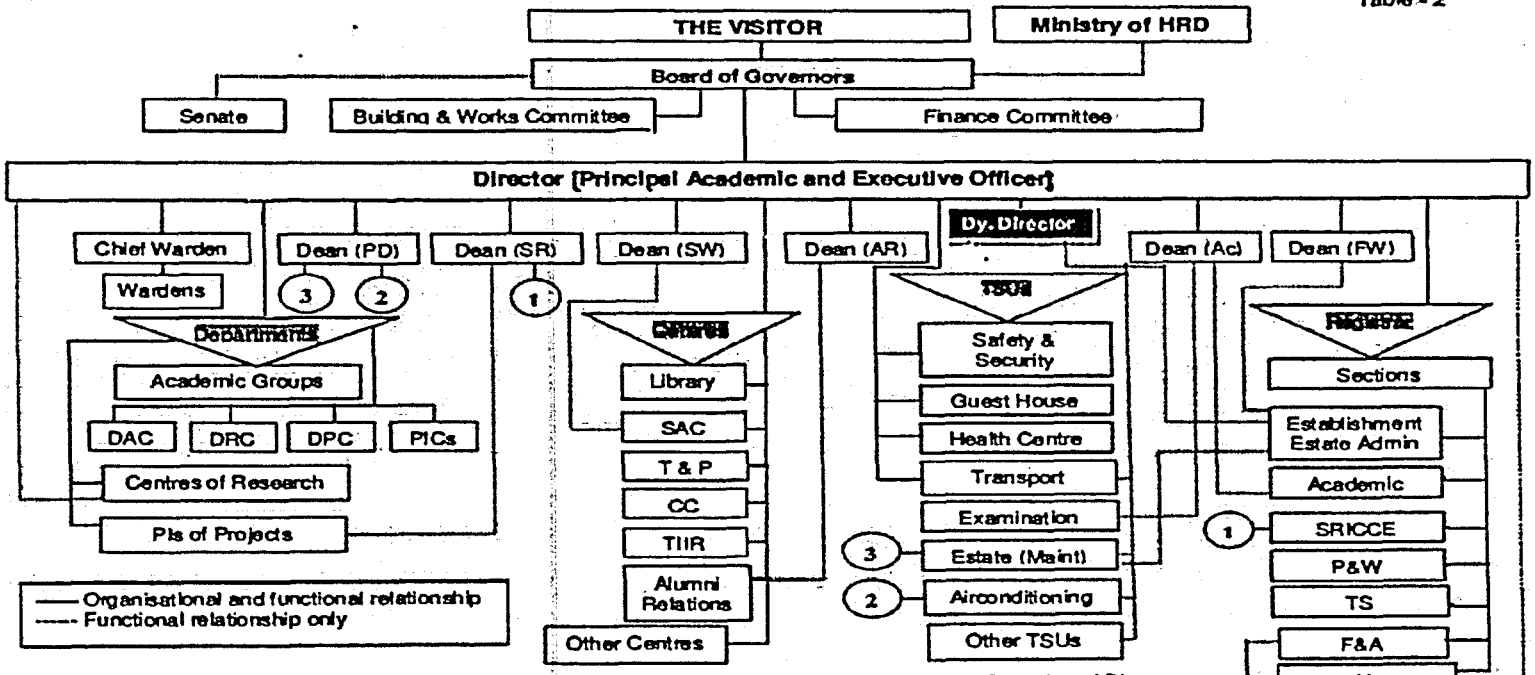
c) Officers are expected to educate, monitor and evaluate the work of their subordinates; every officer will be evaluated on the basis of the gross output of his section. That also including the output of all subordinates, his personal efforts being given credit for the team performance.

d) Absence or lethargy of an intermediate officer or staff shall not slow down a work. It is the sacred duty of every higher officer or supervisory staff to take over the job of his subordinate when the latter is unavailable, incapable, lethargic or plain non-cooperative. No chain is stronger than the weakest link; the chain of command at NITR shall have no weak link, for a stronger link above it will take over the job expected from it.

A by-passed officer or supervisor shall not complain for being sidelined, but shall strive to make himself so valuable that he will be serving the Institute even from the side line, and no superior will think of side-lining him in future.

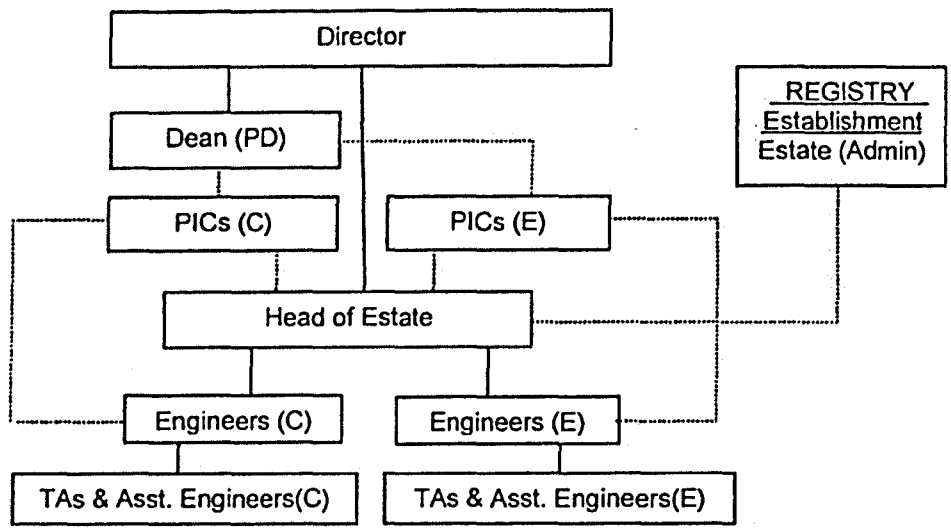
Organisation Structure of Institute Management

Table - 2



Note: 1. Till Dy. Director is appointed; his responsibilities will be distributed among the Deans at the discretion of Director
2. All residual responsibilities remain with the Director which he may delegate to a Dean, HOD or PIC.
3. Assignments of responsibility can be changed any time at the discretion of the Director depending on the need.

Table 3: Detailed Organizational & functional relationships in Estate (Maintenance) Unit



Notes:

- There will be up to 4 PICs, 2 for Civil and 2 for Electrical work (Construction and Maintenance). One PIC may hold dual responsibility.
- Head of Estate shall be at EE or SE level. Engineers (C) and Engineers (E) will be at EE or Engineer level, each given independent responsibility under the supervisory control of Head, Estate.
- Officers at Engineer or higher levels will be given reasonable independence and accountability in their assigned projects for ensuring speed of management.
- Each TA and AE will report to one Engineer or Executive Engineer, as decided by Head of Estate, and be given responsibility accordingly.

e) Depending on need, higher officials may communicate directly with every person under their command, no matter how many steps below; but notes originating at a lower level need to move up only through the "proper channel."

f) It will be the duty of every employee to save time of his superior. Normally, junior officials will prepare proposals and put up to higher authorities for approval. Approval may be accorded or denied or be returned for modification. Junior functionaries shall never complain that their time was wasted.

g) Senior officials shall not insist on a note to originate from a lower level for initiating a work. In case of possibly controversial ideas, proposals must originate from senior officers, the highest officer convinced of the merit of the proposal. This will insulate subordinate officers from the burden of defending decisions of higher authorities, and decisions they may not be subscribing to.

h) Employees will not be held personally liable for loss or theft of goods under their care or for collateral loss to the Institute resulting from an honestly taken wrong decision. Of course, every employee will be accountable for deliberate mischief, conscious negligence of duty or plain theft.

i) There shall ordinarily be no extra compensation for doing the duties normally handled by a superior or junior officer, nor for handling another desk in addition to one's own. Nor, there shall be a deduction in pay if, in the opinion of one's superiors, a desk is lightly loaded. Every employee will give his best to the Institute without counting hours and minutes.

j) Faculty and officers shall normally, but not necessarily, not be required to sign attendance registers, while all other staff will. With advancement of technology, biometric attendance shall be introduced when necessary physical arrangements are done.

8. Compliance with Act and Statutes

The following statutory provisions, extracted from the NIT Act 2007 and the Statutes of NIT Rourkela are relevant to the management model proposed in this document.

1. [NIT Act, Clause 17(2)] The Director shall be the principal academic and executive officer of the Institute and shall be responsible for the proper administration of the Institute and for the imparting of instruction and maintenance of discipline therein.

2. [Statutes, Clause 19(1 & 2)] The Institute shall establish not more than six Deanships. The Director shall appoint the Deans with intimation to the Chairperson, Board of Governors.

3. [Statutes, Clause 17(14)] The Director may, at his discretion, constitute such committees, as he may consider appropriate for smooth functioning of the Institute.

4. [Statutes, Clause 17(16)] The Director may, with the approval of the Board delegate any of his powers, authorities or responsibilities vested in him by virtue of the Act and Statutes to one or more members of Academic or Administrative Staff of the Institute.

5. [Statutes, Clause 17(3)] Subject to the budget provisions made for the specific purpose, the Director shall have the power to incur expenditure in accordance with the procedure as may be laid down in the ordinances.

6. [NIT Act, Clause 18(1)] The Registrar of every institute shall be appointed on such terms and conditions as may be laid down by the Statutes and shall be the custodian of records, the common seal, the funds of the institute and such other property of the institute as the Board shall commit to his charge.

7. [NIT Act, Clause 18(3 & 4)] The Registrar shall be responsible to the Director for the proper discharge of his functions. The Registrar shall exercise such other powers and

perform such other duties as may be assigned to him by this Act or the Statutes or by the Director.

Some additional observations that are not articulated in the Act or the Statutes are relevant in context of the Management Model.

1. The Director shall, in all likelihood, come from the faculty cadre of an Institute which mutatis mutandis implies that faculty members in their career need to be exposed to a good fraction of the executive functions in their parent institutions. The proposed model by distributing planning and executing responsibilities among many faculty members through departments, centres and TSUs not only saves time of the higher authorities, but gives opportunity to a hundred faculty members to many executive experience in a progressive manner.

2. The NIT is a public funded, autonomous organization. To maintain accountability and public trust, it is highly desirable that every file relating to an executive or financial action is seen by at least two independent sections of the Institute. Therefore the management model proposed here casts most jobs as combination of four steps – (i) a planning and proposal step initiated by a department, centre or TSU, (ii) a scrutiny step performed by the Registry, (iii) an approval step done by the Director, a Dean or an HOD, and finally (iv) an audit step done by the Internal and CAG audit units. Combining two job functions into one, for example, assigning planning + scrutiny to a department or the Registry will be less trusted by the stake holders.

3. The BOG is a high level authority whose time is limited and not readily available for day to day jobs. Except the most vital and long lasting policies, all other decisions need to be taken at the Institute level through a process of collective decision making.

In view of the above observations, the following overall model emerges:

a) The Board creates broad policies such as the overall Management Model (this document) and Academic & Non Academic regulations, which are widely circulated and are readily available ;

b) The Director, with assistance of Deans, HODs, faculty, officers and technical staff manages all day to day issues including matching people with jobs dynamically without being constrained on the details; and

c) The Registrar, through his team of Deputy and Assistant Registrars, and ministerial staff, scrutinizes every step of execution against regulations and handles all administrative functions (e.g. bringing out formal orders, examining fiscal issues, dealing with commercial agencies and tax authorities, maintaining both short term and permanent records etc.) without physically executing the actions; and.

d) The Audit unit examines the whole process to ensure that the execution steps do not deviate from approved policies.

Retaining distinct identity of the different authorities BOG, Director (+ faculty & officers), Registrar (+ Registry) and Internal Audit is very desirable.

9. Conclusion:

The provisions of this management model are based on decades of experience within the IIT/NIT system. The institutions offer high quality education at low cost, with limited man power and constraints of Government regulations. It is believed that a formal document articulating the management model will give confidence to faculty and officers and will speed up the operation at all stages. As time proceeds, new departments, centres and TSUs will be added and existing units will be strengthened by providing dedicated resources. The NIT Act squarely puts the responsibility of day to day administration on the shoulders of the Director; he also remains accountable for his omissions and commissions to the Board and to the Ministry. Therefore, notwithstanding anything prescribed in this document, the Director shall have the responsibility of distributing responsibilities among his colleagues as he thinks fit in consultation with senior faculty members and officers of the Institute.

BOG Sub-Committee Report

on

Organization Structure

Date : 15.06.2013

राष्ट्रीय प्रौद्योगिकी संस्थान, राउरकेला

National Institute of Technology, Rourkela

(1) Introduction

Board vide resolution No BOG-30(2012)-10 dt. 29.06.2012 wanted to know the administrative system of the entire Institute. Director was advised to put up an administrative structure for the Institute in the next meeting. The proposal was put up on the table for consideration of the BOG. The Board considered the draft document entitled "A Management Model for NIT Rourkela". Further Board Vide resolution No. BOG-31(2012)-07 dt. 04.10.2012 decided to constitute the following sub-committee of the Board to examine the present structure approved by the Board vide resolution No.BOG-29(2012)-17, dt.16.03.2012 and the proposed document against possible conflict with the Act and the Statutes, and to suggest alternative models if necessary to ensure clarity of command structure and improve efficiency of administration within available resources.

1. Prof. Rintu Banerjee ... Chairman
2. Dr. R. K. Bhandari ... Member
3. Prof. R. K. Patel ... Member
4. Mr. S. K. Upadhyay ... Member Secretary

The committee may consider input of Board members, members of faculty and staff if necessary and submit its report to the Board in its next meeting.

NIT, Rourkela was established in 1961 as Regional Engineering College. It was converted to National Institute of Technology in 2002 under Ministry of HRD, Govt. of India. The Institute was declared as an Institute of National importance w.e.f 15 August, 2007 by an Act of Parliament. The First Statutes was implemented in 2008.

As per Clause No. 3 of the Statute, they are Four Authorities of the Institute defined as follows :-

1. The Board of Governors as constituted under section 11 of the Act.
2. The senate as constituted under section 14 of the Act.
3. The Finance Committee as constituted under the Statute No. 10.
4. The Building and Works Committee as constituted under the Statute No. 12.

The Constitution and Power of the Board of Governors are defined under clause 4 and 5 of the Statutes. The Constitution and Power of the senate are given under clause 7 and 8 of the Statutes. The Constitution and Power of the Finance Committee are given under clause 10 and 11 of the Statutes. The Constitution and Power of the Building and Works Committee are given under clause 12 and 13 of the Statutes.

The Power of the Director, the Dy. Director and the Deans are given under clause 17 and 18 of the statues. Further BOG vide resolution No. BOG-21(2009)-08, dt.19.06.2009 have defined the duties and responsibilities of the Deans

The duties and responsibilities of the Registrar is defined under clause 18 of the NIT Act read with clause No. 21 of the Statutes. BOG vide resolution No.BOG-18(2008)-17(c), dt.26.09.2008 have further defined the duties and responsibilities of Registrar in detail.

BOG vide resolution No. BOG-29(2012)-17, dt.16.03.2012 have defined the present organization structure which is given as **Annexture-1 Pg.No.16.**

(2) ***Proposed Model by Director:-***

The Proposed Model was discussed in detail which is given in the **Annexure-2, Pg. No17-33.**

(3) Departments and Centres

For the purpose of management, the Institute is organised in terms of units and sub-units of 5 types: Departments, Centres of Research (within departments),Support Centres, Offices or Sections. At present, NITR has 17 departments, 3 centres of research and six academic support centres. They are:

Departments:

1. Biotechnology & Medical Engineering (BM)
2. Ceramic Engineering (CR)
3. Chemical Engineering (CH)
4. Chemistry (CY)
5. Civil Engineering (CE)
6. Computer Science & Engineering (CS)
7. Electrical Engineering (EE)
8. Electronics & Communication Engineering (EC)
9. Humanities & Social Sciences (HS)
10. Industrial Design (ID)
11. Life Science (LS)
12. Mathematics (MA)
13. Mechanical Engineering (ME)
14. Metallurgical and Materials Engineering (MM)
15. Mining Engineering (MN)
16. Physics (PH)
17. School of Management (SM)

New Departments (Starting 2013-14):

18. Planning and Architecture (PA)
19. Food Process Engineering (FP)
20. Earth & Atmospheric Sciences (EA)

Centres of Research[Host Department]:

1. Centre for Industrial Electronics & Robotics– ER [EE]
2. Centre for Cryogenics & Industrial Refrigeration – RC [ME]
3. Centre for Development of Nano Materials – NM [CR]

Some proposed new centres of research for which the critical volume of expertise and experience are available in the institute are:

1. Centre for Research on Dam Safety (CE)
2. Centre for Renewable Energy Systems (EE)
3. Centre for Tissue Engineering and Regenerative Medicine (BM)
4. Centre for Research on Heat Transfer Equipment (ME)
5. Centre for Image Processing (CS)
6. Centre for Research on Communication (EC)

Some of these centres, in due course, are expected to be recognised as centres of excellence by external funding agencies such as MHRD, DST, DBT, BRNS, ISRO etc. The Institute, however, has no policy of declaring any centre of research as a centre of excellence, because the institute's target is to achieve excellence in every field of reserach.

(4) Requirement of the Institute:-

1. Focus on Teaching:-

NITR is always famous for teaching and academics. The focus on teaching should not not be lost sight of, so that we create world class academic environment and Teaching learning process should not be compromised.

2. Focus on Research:-

In the recent years a lot of emphasis has been given on Post-Graduation and Research activities in the institute. As a result the enrolment of M-Tech and Ph.D students have increased considerably. The intellectual capital of the Institute as compared to IITs and other comparable Institutes is not significant. The efforts should be made in this direction.

3. Focus on consultancy / Industry Institute Collaboration:-

(a) The state of Odisha is rich is mineral and other resources. A lot of metallurgical and mining industries have come up in the recent years. *Nevertheless* being a premier institute, the collaboration and networking with industry is not encouraging. The academic staff should try on collaboration and engagement with industry and their energy should be channelized in that direction.

(b) Power industry:-

The power industry in the state look for consultancy either from IIT, Kanpur or from IISC, Bangalore. Accordingly possibility of collaboration with power industry by the institute is quite high.

(c) Environment / Civil works:-

The state govt. and pollution control institutes look for other agencies for consultancy work in civil and environment engineering. Institute can play a major role in these areas of work. Similarly

Electronics, Chemical and in other branches, there is need for aggressive intervention with industry and institutions.

4. *Focus on Weak and Problems Students:-*

As discussed in various Committees and by the auditors there is a need to focus on weak and problems students. We need to have an intensive and frequent interaction by the faculty and the students. The role of faculty advisors is very important in this regard.

Academic Staff are considered as vacation staff, who avail vacation during summer and winter.

(5) Provision in the Acts and Statutes:-

The following statutory provisions, extracted from the NIT Act 2007 and the Statutes of NIT Rourkela are relevant to the management model proposed in this document.

1. [NIT Act, Clause 17(2)] The Director shall be the principal academic and executive officer of the Institute and shall be responsible for the proper administration of the Institute and for the imparting of instruction and maintenance of discipline therein.
2. [Statutes, Clause 19(1 & 2)] The Institute shall establish not more than six Deanships. The Director shall appoint the Deans with intimation to the Chairperson, Board of Governors.
3. [Statutes, Clause 17(14)] The Director may, at his discretion, constitute such committees, as he may consider appropriate for smooth functioning of the Institute.
4. [Statutes, Clause 17(16)] The Director may, with the approval of the Board delegate any of his powers, authorities or responsibilities vested in him by virtue of the Act and Statutes to one or more members of Academic or Administrative Staff of the Institute.
5. [Statutes, Clause 17(3)] Subject to the budget provisions made for the specific purpose, the Director shall have the power to incur expenditure in accordance with the procedure as may be laid down in the ordinances.

Deanships:-

Schedule "C"[See Statute 19 (5)]:-

The institute may have not more than six deanships. There may be following Deanships in National Institute of Technology with the approval of the Board of Governors:-

(a) Dean Academic
(b) Dean Planning and Development
(c) Dean Student Welfare
(d) Dean Faculty Welfare
(e) Dean (Research and Consultancy)

Deanship is a functional position and not administrative one and as such be discharged in its right sprit. Dean must be nominated by the Director only from amongst the Professors/Associate Professors, but should not be Head of any Department.

The tenure of Deanship shall ordinarily be two years extendable by one more year, but Director with the approval of the Chairperson, Board of Governors may relieve any or all Deans before such period. Duties and responsibilities of the Deans is given as **Annexure-3, Pg.No.33-36.**

NIT Act (18):- Registrar:-

(1) The Registrar of every Institute shall be appointed on such terms and conditions as may be laid down by the Statutes and shall be the custodian of records, the common seal, the funds of the Institute and such other property of the Institute as the Board shall be commit to his charge.

(2) The Registrar shall act as the Secretary of the Board, Senates and such committees as may be prescribed by the Statutes.

(3) The Registrar shall be responsible to the Director for the proper discharge of his function.

(4) The Registrar shall exercise such other powers and perform such other duties as may be assigned to him by this Act or the Statutes or by the Director.

Further Board resolution vide No. NITR/RD/BOG-18/2008/M/521, dated 26.12.2008, the Board explicitly assigns the following responsibilities to the Registrar:-

(5) Registrar shall act as Estate Officer under Public Premises Act, 1971 vide MHRD letter No. F.14-9/2007-TS-III, dt.31.07.2007,

(6) He shall be the Member Secretary of:

(i) Finance Committee

(ii) Building & Works committee

(iii) Deans, Heads of Department Committee.

(iv) Departmental promotion Committee.

(v) Public Grievance Committee.

(7) The Registrar shall assist the Director in the administrative matter and may be called upon to take up any other duties assigned by the Director or the Board of Governors. He shall be assisted by the Asst. Registrar/ Asst./Dy. Registrar (Admn.), Finance Officer, Asst. Registrar/ Dy. Registrar (Aca), Asst. Registrar/ Dy. Registrar(IA), Asst. Registrar/ Dy. Registrar(Purchase & Works), Asst. Registrar/ Dy. Registrar(SRICEE), Security Officer and In-charge (Technical Services) with associating and supporting staff and any other officer or staff assigned by the Director.

Statutes 22:- Classification of the Members of the Staff:-

(1) Except in the case of employees paid from contingencies, the members of staff of the institute shall be classified as under:-

(i) Academic Staff :- Director, Deputy Director, Professor, Associate Professor, Assistant Professor, Lecturer, Professor Training and Placement, and such other academic posts as may be decided by the Board from time to time;

(ii) Technical Staff:- System Manager, System Analyst, Programmer, Librarian, Workshop Superintendant, Assistant Workshop Superintendant, Foreman, Technician, Instructor, Laboratory Assistant, Mechanic, Overseer, Technical Assistant, Draftsman and such other technical posts as may be decided by the Board from time to time; and

(iii) Administrative and other Staff:- Registrar, Deputy Registrar and Assistant Registrar, Accounts Officer, Audit Officer, Estate Officer, Executive Engineer, Assistant and Junior Engineer, Medical Officer, Medical Assistant, Horticultural Assistant / Officer, Office Superintendent, Security Officer, Stores Officer, Store Keeper, Office Assistants, Data Entry Operators and such other Administrative and other staff as may be decided by the Board from time to time.

(2) Posts classified as Academic Staff shall be vacation posts only.

Statutes 17(3):-

Subject to the budget provisions made for the specific purpose, the Director shall have the power to incur expenditure in accordance with the procedure as may be laid down in the ordinances.

Statutes 17(9):-

The Director shall have the power to send members of the staff for training or to attend course of instruction inside India subject to such terms and conditions as may be specified by the ordinances.

(6) Visit to IIT Bombay and IIM, Ahmadabad:-

The subcommittee visited to IIT Bombay and IIM, Ahmadabad and discussed in details regarding the organization structure of these two institutes of National Importance (**Annexure-4,Pg.No.37-38**).

(7) Guideline by MHRD, Govt. of India for administrative reforms:-

The Govt. of India has given guideline for carrying out administrative reforms in autonomous bodies to make it efficient transparent and honest. Administration has to be citizen centric and ethics based management. Based on the recommendation from the Government, the citizen's charter has been prepared as give in **Annexure-5, Pg.No.10-15**. e-Governance should be implemented on priority.

(8) Observations of the Committee :-

The Primary responsibilities of the faculty members are

1. Teaching.
2. Research
3. Consultancy
4. Functional assignments.

The focus of the faculty members is to concentrate on the above assignments. If they are engaged in day to day administrative assignments;

1) They may loose focus on the primary responsibility assigned to them,

2) The system may become ineffective as administrative assignments are not their prime responsibility,

3) They may also loose respect from the employees for their indecisiveness, lack of ownership etc.

Recommendation:-

1) The post of Dy. Director is not same as that of Dean's. Necessary changes have been made in the structure.

2) Functional relationship between Dy. Director and Registrar is indicated.

3) An Apex Advisory Committee may be constituted as follows:

i)	Director	...	Chairman
ii)	Dy. Director	...	Member
iii)	Deans	...	Member
iv)	Two HODs (One Concerned HOD and One HOD nominated by Director)	...	Member
v)	Registrar	...	Member Secretary

All policy matters should be scrutinized by the apex advisory committee before it is put up to the BOG.

4) An advisory committee may be constituted for the support services such as Guest House, Security, Medical and Estate Maintenance which will meet twice in a year for monitoring of the various activities.

i)	Dy. Director/Dean	...	Chairman
ii)	PIC	...	Member
iii)	One faculty nominated by the Director	...	Member
iv)	One Non-teaching staff nominated by the Registrar	...	Member
v)	DR/AR	...	Member Secretary

5) Delegation of power need to be revised as per the new structure.

6) Duties and responsibility of each HODs, Chairman of different committees and PICs are to be defined.

7) Workshop is not a Department. It should be incorporated as a Central Facility.

8) The revised organizational structure is given in **Annexure-6, Pg.No.9.**

9) <u>Ordinances</u> – As per the act and statutes both administrative and academic ordinances are required to be prepared. It is proposed that a committee may be constituted for preparation of Administrative and Academic Ordinances for NIT, Rourkela.

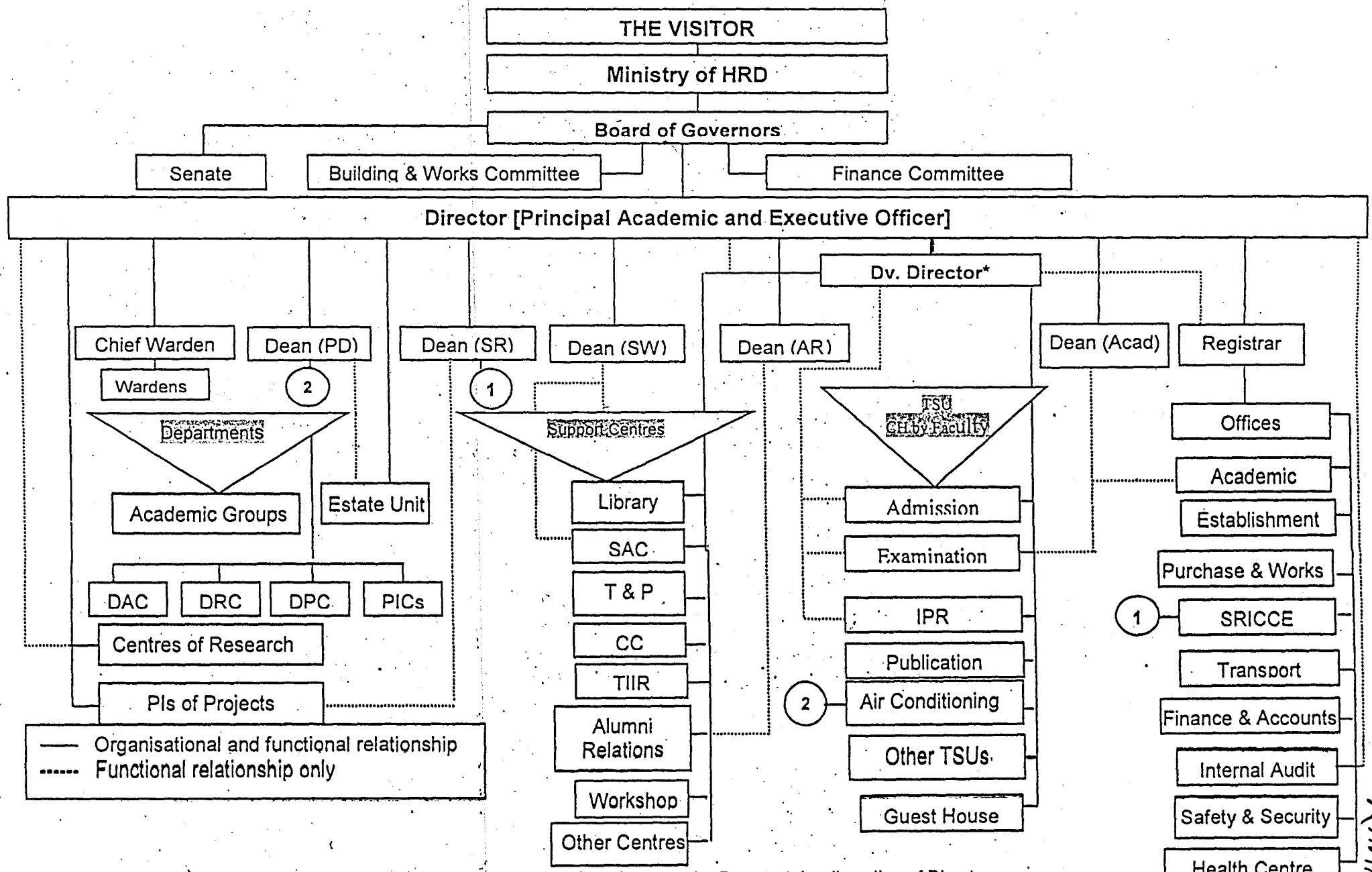
1. (Prof. R. K. Patel)
Member

2. (Dr. R.K. Bhandari)
Member

3. (Sri. S. K. Upadhyay)
Member Secretary

4. (Prof. R. Banerjee)
Chairman of the Sub-Committee

Organisation Structure of Institute Management



Note: 1. Till Dy. Director is appointed, his responsibilities will be distributed among the Deans at the discretion of Director
2. All residual responsibilities remain with the Director which he may delegate to a Dean, HOD or PIC.
3. Registrar will be the Chief Administrative Officer.
*4. In the absence of Director, Dy. Director will act as officiating Director.

Annx-9

राष्ट्रीय प्रौद्योगिकी संस्थान, राउरकेला

National Institute of Technology, Rourkela

CITIZEN'S CHARTER

June-2013

www.nitrkl.ac.in

1. INSTITUTE INTRODUCTION

National Institute of Technology, Rourkela is an institute of national importance declared by the NIT ACT, 2007 and is under the Ministry of Human Resource Development, Government of India.

The institute is located in 260 hectares of land in Rourkela, better known as the Steel City of Odisha within the district of Sundergarh of Odisha state. The institute has no branches.

Hon'ble President of India is the visitor of the institute and Policies of the institute are framed by a Board of Governors nominated by him.

Director of the institute is the Chief Executive Officer of the institute and Registrar is the custodian of the common seal of the institute.

MISSION

To advance and spread knowledge in the area of science and technology leading to creation of wealth and welfare of humanity.

VISION

To become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for the society and be a preferred destination for undergraduate and post graduate studies.

QUALITY POLICY

Every student and employee of NIT Rourkela as well as external agencies providing service to the Institute shall strive to achieve quality, speed and economy (in that order of importance) in all their endeavors. They will employ and create TECHNOLOGY to enhance productivity, protect the environment and uphold human dignity.

GUIDING PRINCIPLES

- Build an environment that is conducive to academic pursuit, nurturing creative thoughts and inculcating a spirit of inquiry.
- Promote free exchange of knowledge and experience with others, while respecting each other's right to intellectual property.
- Ensure quality, speed, economy and transparency in all spheres of our activities.
- Create a truly multicultural community and promote cultural bonding and teamwork among all.
- Provide opportunity to every member of the Institute for achieving academic excellence, developing all round personality and realizing his or her full potential.
- Adopt state of art technology in all endeavors.
- Serve the society around, using the knowledge and expertise of the Institute.

2. SERVICES PROVIDED

Major services provided by the institute are as follows:-

a) Teaching

The institute imparts high quality teaching in engineering, technology, management and humanities starting from Undergraduate Courses to Post Doctoral Research

b) Training

The institute provides training to students from other institutions mainly during Summer Vacation.

c) Research and Development

The institute also conducts advance level research in the areas in which it imparts teaching.

d) Consultancy

The institute provides professional level consultancy to industry as well as Government organizations in various fields.

e) Continuing Education

Apart from regular teaching, the institute is also conducts a number of Continuing Education Programs for students, academicians as well as industries.

3. GRIEVANCE REDRESSAL

The institute pays serious attention to the grievances of its stakeholders both internal and external and is keen to solve the same. Accordingly, there are two Grievance Redressal Committees as follows:-

a) Public Grievance Redressal Committee

Function:

i) To consider all grievance of parents of students and public citizens against the institute and to recommend corrective measures for consideration of the Director or the BOG.

ii) To take proactive steps to explain Institute rules, regulations and other relevant issues through circulars and other means so that most complaints can be addressed to at their root.

Responsible to	:	Board of Governors (BOG)
Frequency of Reporting	:	As needed, at least once every year
Financial Authority	:	None
Tenure of Members	:	2 years
Chairman	:	One BOG member nominated by Chairman, BOG
Secretary	:	Registrar
Members	:	Dean (SA), Dean (AR), Dean (FW), One public figure of High Stature nominated by BOG, 2 members of Local alumni nominated by Director, Chairman, Press & Public Relation Committee

b) Internal Grievance Redressal Committee

Functions:

(i) To consider all grievances of faculty, staff and students against administration decisions on issues with the scope of the local administration and to recommend corrective measures for consideration of Director of BOG.

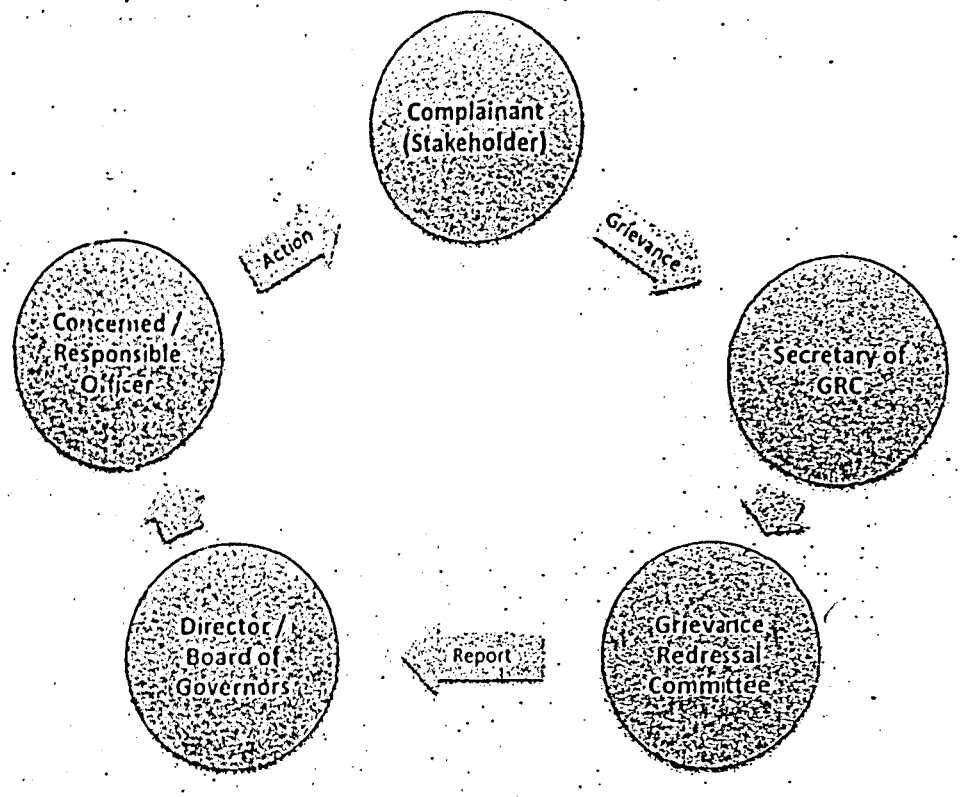
(ii) To explain relevant rules to students and staff members and through circulars, explanatory notes and discussion meeting so that unfounded grievances can be addressed to at source.

Responsible to	:	Director
Frequency of Reporting	:	As needed, at least once every year
Financial Authority	:	None
Tenure of Members	:	Two years
Chairman	:	Dean (FW)
Secretary	:	Registrar

Members---- : Dean (SA), Dean (AR)
One retired employee nominated by Director
One alumnus nominated by Director

c) Process of Grievance Redressal

The whole process of Grievance Redressal is very simple as depicted below:-



ACCESS TO INFORMATION

The institute is recognized as a Public Authority (PA) under the Right to Information Act, 2005 (RTI Act) and Information held by it are accessible by the citizens if India under the said Act. The institute has nominated its responsible officers under the RTI Act as follows:-

Particulars	Responsible Areas	Responsible Officer	Contact Details
CPIO - 1	Establishment, Personnel, and General Administration	Dy. / Asst. Registrar (Establishment)	Ph. – (0661) 2462061 e-mail – establishment@nitrkl.ac.in
CPIO - 2	Admission, Examination and other academic issues	Dy. / Asst. Registrar (Academics)	Ph. – (0661) 2462031 e-mail – ar-acad@nitrkl.ac.in
CPIO - 3	Purchase and Works	Dy. / Asst. Registrar (P&W)	Ph. – (0661) 2462051 e-mail – ar-pw@nitrkl.ac.in
CPIO - 4	Finance & Accounts	Dy. / Asst. Registrar (F&A)	Ph. – (0661) 2462041 e-mail – fin-officer@nitrkl.ac.in

Particulars	Responsible Areas	Responsible Officer	Contact Details
CPIO - 5	Research, Consultancy and Continuing Education	Dy. / Asst. Registrar (SRICCE)	Ph. – (0661) 2462151 e-mail – ar-sr@nitrkl.ac.in
First Appellate Authority	All Areas	Registrar	Ph. – (0661) 2462021 e-mail – registrar@nitrkl.ac.in
Transparency Officer	All Areas	Prof. S. Bhattacharyya, Professor (CR)	Ph. – (0661) 2462205 e-mail – santanub@nitrkl.ac.in

Further details on RTI is available in the website of the institute
(URL - http://www.nitrkl.ac.in/Institute/RTI/RTINitr.aspx)

4. LIST OF STAKEHOLDERS

The institute has two types of stakeholders as follows:-

a) Internal - Faculty Members, Officers and Staff

b) External - Students, Parents, Contractors, Suppliers, Sponsoring Organizations, Consultancy Service Clients, General Public

5. LIST OF RESPONSIBILITY CENTERS

The institute is located in a single campus and has following responsibility centers:-

Responsibility Center	Responsibility Areas
a) Academic	Teaching, Training, Research, Consultancy and Continuing Education
b) Extra-Academic	Sports, Music, Arts, Cultural, etc. for students
c) Administrative	Admission, Examination, Recruitment, Personnel Matters, Finance & Accounts, Purchase & Works, Security, etc.
d) Halls of Residence	Lodging and Boarding facility for students and research scholars.

6. INDICATIVE LIST OF EXPECTATION FROM SERVICE RECIPIENTS

The institute has identified certain expectations from the service recipients as follows:-

a) From Students

i. Be serious on academics as well as extra-academic activities.
ii. Maintain absolute discipline always and at every place.
iii. Be courteous with faculty and staff of the institute.
iv. To pay all required fees and do their registration in time.

b) From Parents

i. Encourage their ward(s) to be serious on academics as well as extra-academic activities.
ii. To make necessary arrangement for payment of fees on time by their ward(s).

c) From Research Project Sponsors

i. To release grants in time.

ii. To make wide publication of the research outcomes submitted by the institute if not confidential in nature.

d) From Consultancy Clients

i. To clearly describe their requirements.

ii. To make payments promptly for the services.

iii. To ensure confidentiality relating to the IP aspects of the institute being made available to them in the course of consultancy.

e) From Continuing Education Program Applicants/Participants

i. To apply and make payment for the programs in time.

ii. To maintain sincerity and punctuality during the programs.

iii. To use the institute facilities provided during the program sensibly and diligently.

f) From citizens seeking information under RTI Act, 2005

i. To seek for information which are admissible to be provided under the RTI Act.

ii. To clearly specify the information required by them.

iii. To provide correct address for communication.

g) From public in general visiting the institute

i. To strictly follow the security guidelines and instructions.

ii. To maintain discipline and be courteous in their dealing with the institute employees.

iii. Not to cause any damage to the property of the institute.

iv. Not to disturb the peaceful and cleanliness environment of the institute.

IMPORTANT CONTACT DETAILS

STD Code - 0661

Registrar's Secretariat

Phone - 2462020

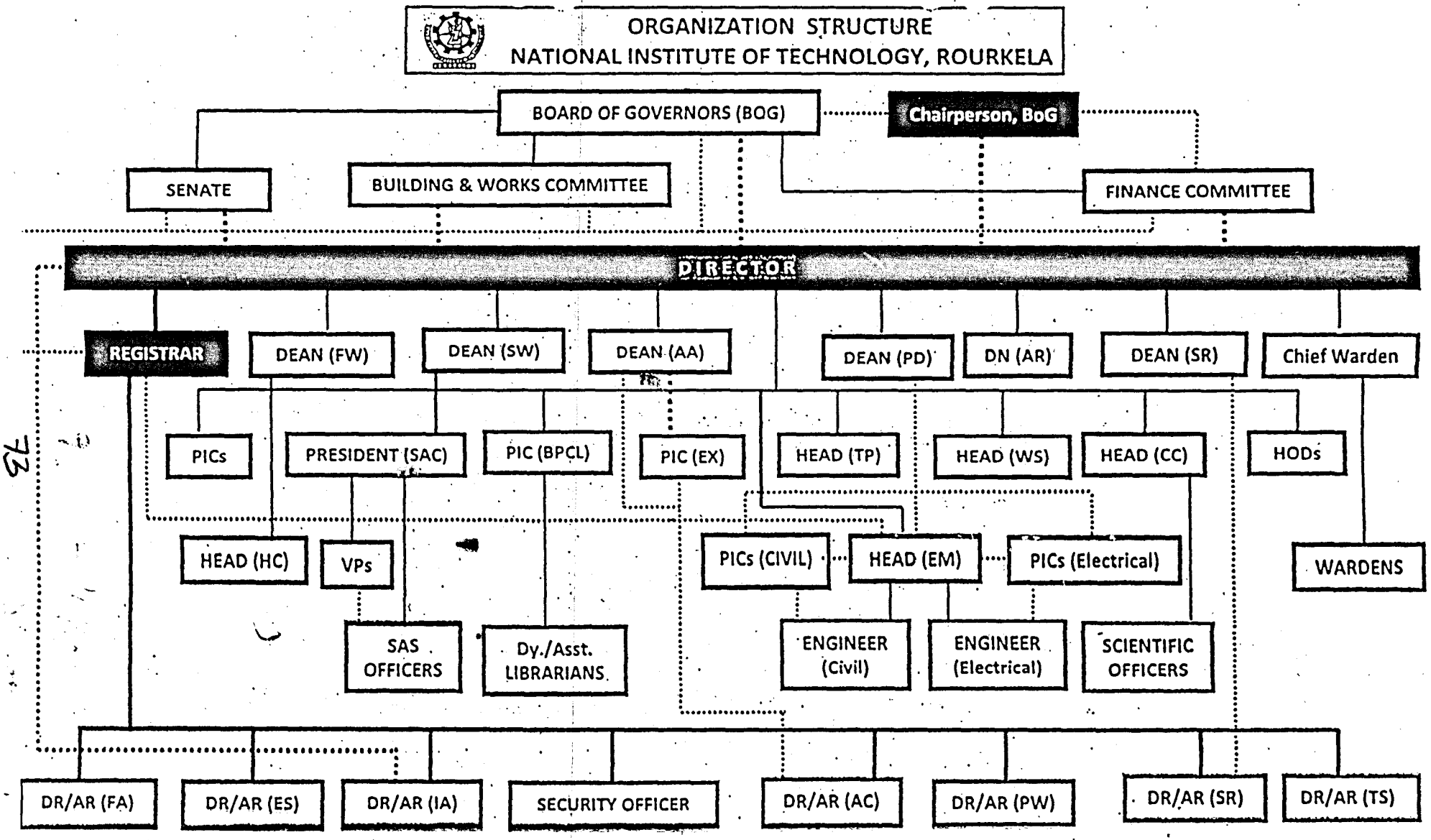
FAX - 2462022

Director's Secretariat

Phone - 2462002

FAX - 2472926

ORGANIZATION STRUCTURE
NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA



LEGEND

1. *Solid lines (——) represent both Administrative and Functional relationship.*
2. *Dotted lines (·····) represent only Functional relationship.*

REFERENCE

1. *Approved vide BOG Resolution No. BOG-29(2012)-17, Dt. 16.03.2012.*
2. *Notified vide Circular No. – NITR/RG/BOG29/2012/126, Dt. 30.03.2012.*

Registrar
National Institute of Technology

DIRECTOR
National Institute of Technology
Rourkela-769008 (Orissa)

National Institute of Technology Rourkela

A Management Model for NIT Rourkela

Introduction

To function and to prosper, everyinstitution needs a "management" or "organisation" in place. In case of NITR, the structure of the higher management is defined by the NIT Act 2007, and the statutes of the Institute, leaving the details of the junior management to the local authorities. The director, appointed by the Visitor, is the Chief Executive Officer and is expected to be responsible and accountable to the Board, the Government, and to the Visitor for delivering the intended service to the nation. He is assisted by faculty holding statutory positions such as, deans and heads of departments, other faculty members and full time officers. The faculty and officers also assist the director, deans and HODs through a set of formal committees whose structures and tenures have been explicitly defined by the BOG and documented for reference. Often, but not always, an HOD or a professor in charge of a TSU is the chairman of a committee looking after the affairs of the activity.

The word used here is "management" in contrast with "administration". In common parlance of institutes of higher learning, management is distinguished from administration in 3 ways, though these definitions may not be lexicographically correct.

- Management is more towards growth while administration is more towards maintaining smooth, event-free operation.
- While managers are more self-driven decision makers, administrators rely more on rules, traditions and instructions of higher authorities.
- Management personnel may be drawn, when so necessary from academic stake holders, while administrative personnel are dedicated professionals trained for the job.

It must be noted that the distinctions stated above are a matter of degree, not of kind. The personnel running the affairs of the Institute, whether faculty members taking administrative roles on the side or full time officers appointed for the purpose, all shall constitute the management, shall be flexible in their approach while honouring every rule of the Institute in letter and spirit, shall be growth oriented, and most important of all, shall be self-motivated creating an environment of cooperation both laterally and vertically.

The phrases "Institute Administration" and "Local Administration" shall represent all operating personnel working on campus, i.e. the director, the faculty and the officers, thus distinguishing them from the higher authorities – the BOG, the Ministry and the Visitor. The Institute Administrators, of course, do "management", not "administration", when seen in light of the discussion in paragraphs above.

Clarity of command line and of administrative relationship is essential for successful operation of any organisation. The objective of this document is to define the administrative structure, the personnel involved, authority, accountability, financial issues and records to be maintained.

2. Basic Administrative Frame work

For administrative purposes, the institute is organised in terms of a set of departments, centres, offices and TSUs (Technical Service Units). While the first two terms are commonly used in all institutions of higher learning, the latter two are less known and will be articulated later in this document. The Director, as the Chief Academic and Executive Officer of the Institute, is assisted by the Deputy Director (when appointed in future), the Registrar, the Deans, Associate Deans (if such positions are created in future), Heads of Departments and Centres and PICs of various TSUs.

A department is an academic cum administrative unit consisting of faculty with common background and specialisation.The Central Workshop is a department where the faculty are drawn from other departments on approval of director. Similar arrangement is also followed for some other units of the institute, e.g. SAC and some TSUs. Normally a department is organised in terms of "academic groups", each group containing three to five faculty members with common academic and research interest. In formative years, academic groups may consist of less number of faculty members. Every member of the faculty must belong to one, and only one, academic group. All resources and responsibilities of a department are divided among academic groups, and group in-charges are accountable to the HOD. In addition, the HOD creates departmental committees and appoints PICs to look after departmental affairs. Major departmental committees include the Departmental Academic Committee (DAC), Departmental Research Committee (DRC) and Departmental Purchase Committee (DPC). Other Departmental functionaries include PICs of seminars, information and maintenance. Normally departmental affairs including creation of committees and appointment of PICs are handled by the HOD with assistance of senior faculty; but in extreme cases the director may intervene if he feels it necessary in the interest of the institute.

A "Centre of Research"is either a subset of a department or an inter-departmental unit dedicated to research in a specific area or to another academic activity not directly related to award of degrees.Such a centre is necessarily hosted by a parent department and functions within its academic framework while enjoying substantial autonomy in its assigned function.It is like a club of faculty members with common research interest who pool their resources to be more productive. Faculty and students associated with centres of research hold common seminars, submit joint research proposals and share each

other's responsibility at times of need. The centre may have a tiny office, a dedicated fully equipped seminar room, a notice board, a web page in the Institute web site, but not much else. The Institute supports faculty and laboratories associated with these centres to a degree greater than other activities in terms of equipment and technical man power.

In many institutes there are inter-disciplinary research centres that are more like departments except that they do not offer UG programmes. They often have their own buildings and offer own PG programmes, the heads of the centres reporting directly to the director of the institute. Experience of IITs have shown that such an arrangement is not considered healthy for the overall academic life of an institute and such centres are not envisaged to be set up at NIT Rourkela.

An Academic Support Centre, such as the Library or the T&P Centre, is an independent unit without pedagogic activity but offering significant support service to the Institute as a whole. They perform essential quasi-academic functions and are normal constituents of institutions of higher learning.

While the actual academic or support activity is performed by a Department/Centre/TSU, the higher layer of management support is provided by the Registry headed by the Registrar. He is assisted by a set of deputy and assistant registrars, each of whom heads a section or an "office". For example, the Academic Section headed by the DR/AR (Acad) administersallacademic issues related to curricula and syllabi, instruction and monitoring, examinations, grades and results. The P&W section supports the purchase and works activities by departments, centres and TSUs by authenticating the recommendations against the rules and handling all commercial terms with the contractors, transporters and insurers as well as all commercial issues related to taxes and duties.

Apart from teaching, research and extracurricular activities, an institution of higher learning requires a variety of services - maintenance of class rooms, lawns and gardens, guest house, telephone service, etc. Each of these support services is termed as a "technical service" and the people providing this service constitute a "Technical Service Unit (TSU)". While the operation layer of the service under "technical services" is provided by the TSUs, the higher layer of the management such as posting of advertisements, award of contracts, scrutiny of documents, maintenance of permanent records, processing of bills before payment etc. for all services is handled by the concerned Assistant Registrar assisted by the Technical Services Section of the Registry.

Every department or centre shall have the following administrative resources.

- The Head of the Department appointed by the Director as per statutes,
- An office with at least one ministerial staff,
- An allocated budget,
- A purchase committee, an academic committee (DAC) and the department academic research committee (DRC),
- Faculty in charge of various other functions as assigned by the HOD, and
- A set of stock registers and a procurement register.

This structure is not strictly applicable to TSUs; but TSUs also need a comparable administrative system, a clean command line, a pre-defined budget, personnel, accountability and pre-defined relationship among its constituents.

In a university of a developed country or even in some private universities in India, there is a well-established bureaucracy and support structure to provide services, so that the faculty spends all its time on research and teaching. Needless to say, that is the most ideal way of running a university, to achieve optimal utilisation of scarce intellectual resources. The model, however, has been tried and has visibly failed in Indian public universities. One can argue on the reasons and circumstances of this failure; but one thing is true – there is no example of a publicly funded university in India where all, or almost all, services are made available to the faculty without its own involvement. In contrast,Indian universities, specifically the IITs, have evolved a management paradigm, which has been successful in providing a decent though not an ideal work environment to those institutes. The management model proposed below for NIT Rourkela is based upon, though not identical to, this model. The following are the main features of NITR's strategy for providing technical services.

Apart from the faculty, the institute appoints a set of officers – Librarians, Scientific and Technical Officers, Doctors and Engineers. The number of these officers, however, is well below the number required, particularly considering the procedural requirement of a Government organisation and the staff sanction policy of the Government. The institute supplements the available strength of dedicated officers with part time services of its faculty and technical staff, at all levels. Apart from providing the required management manpower, this system of participatory management inspires confidence among the faculty and staff.

In this system, every such activity, called a technical service (TS) is handled, fully or partially, by one or more faculty members or officers. In some cases, they are associated by dedicated professional staff, if available. The faculty members get designations such as Dean, Associate Dean, Professor in Charge (PIC) or Committee member or oftenhave no designation.

A Technical Service Unit (TSU) is normally headed by a designatedfunctionary - PIC or Associate Dean [when such positions are created by the Board in future], who will work under the guidance of a Dean or the Deputy Director.Supporting staff for the TSUs are drawn from administrative units, e.g. Health Centre, Estate Unit, Safety & Security Services, to the extent available. The rest of the required personnel are drawn from the faculty and technical staff of the Departments, Centres and other services on part time or full time basis. These faculty and staff members, while retaining normal organisational relationship with their parent departments, maintain a functional relationship with their supervisors in the TSUs. Such relationships, of course, are limited to assigned duties and durations of the job.

Ministerial services for the TSUs are provided by the PIC's own department. In rare cases, when the volume of ministerial service required is large and beyond the scope of the host department, the PIC may hire the service from the market or be providedexplicitly by the Registry.

3. Departments and Centres

For the purpose of management, the Institute is organised in terms of units and sub-units of 5 types: Departments, Centres of Research (within departments),Academic Support Centres, Offices or Sections of the Registry, and Technical Service Units (TSU). At present, NITR has 18 departments, 3 centres of research and six Academic Support Centres. They are:

Departments:

1. Biotechnology & Medical Engineering (BM)
2. Ceramic Engineering (CR)
3. Chemical Engineering (CH)
4. Chemistry (CY)
5. Civil Engineering (CE)
6. Computer Science & Engineering (CS)
7. Electrical Engineering (EE)
8. Electronics & Communication Engineering (EC)
9. Humanities & Social Sciences (HS)
10. Industrial Design (ID)
11. Life Science (LS)
12. Mathematics (MA)
13. Mechanical Engineering (ME)
14. Metallurgical and Materials Engineering (MM)
15. Mining Engineering (MN)
16. Physics (PH) [To be renamed as Department of Physics and Astronomy]
17. School of Management (SM)
18. Central Workshop (WS).

New Departments (Starting 2013-14):

19. Planning and Architecture (PA)
20. Food Process Engineering (FP)
21. Earth & Atmospheric Sciences (EA)

Centres of Research [Host Department]:

1. Centre for Industrial Electronics & Robotics–ER [EE]
2. Centre for Cryogenics & Industrial Refrigeration – RC [ME]
3. Centre for Development of Nanomaterials – NM [CR]

The following new centres of research have already been proposed by departments, and more are in the pipeline.The Board may create more such centres where the critical volume of expertise and experience are available in the institute.

1. Centre for Research on Dam Safety (CE)
2. Centre for Renewable Energy Systems (EE)
3. Centre for Tissue Engineering and Regenerative Medicine (BM)
4. Centre for Research on Heat Transfer Equipment (ME)
5. Centre for Image Processing (CS)
6. Centre for Research on Communication (EC)

Some of these centres, in due course, are expected to be recognised as "centres of excellence" by external funding agencies such as MHRD, DST, DBT, BRNS, ISRO etc. The Institute, however, has no scheme of declaring any centre of research as a centre of excellence, because the institute's target is to achieve excellence in every field of effort.

Academic SupportCentres :

1. BijuPatnaik Central Library – BPCL
2. Computer Centre – CC
3. Training & Placement Centre – TP
4. Student Activity Centre – SA
5. Centre for Alumni Relations – AR
6. Centre for Technology Innovation and Industry Relations (TIIR) – TR

4. Technical Serivce Units (TSU)s

An institution of higher learning requires many services to function. Some are common across many institutes, while some are unique to a particular institution depending on its historical and social traditions. At NIT Rourkela, these services are provided by a set of Technical Service Units (TSUs), which may have their own full time staff or are managed by drawing staff from departments and centres at both management and worker level, the latter being the rule rather than exception.The word "Technical"in"Technical Service" should be interpreted in generic term, instead of being associated with a vocational trade. A list [not exhaustive] of technical service units (TSUs) and their management attributes are listed in the table below. Additional TSUs can be created and listed ones can be reorganised at the discretion of the director.

The PICs or Associate Deans will have the status of HOD in their respective TSUs. Some of the TSUs will be issued procurement and stock registers, or only the direct purchase registers as per Table-1 of this document, which can be amended from time to time on approval of Director. The Technical Services Section of Registry will provide support to all TSUs just as the P&W and Establishment Sections support the Departments and Centres without taking over their work.

The Institute will appoint PICs (or Associate Deans in future) and technical staff on additional charge basis for the TSUs, on approval of Director. Normally both the PIC and the technical staff will spend a reasonable fraction of their time on the work of TSUs, doing operation and maintaining records. The PICs will remain fully accountable to the supervising Deans and higher authorities for their administrative and financial decisions and maintenance of records. Wherever necessary, the Department of the PIC will provide, on priority basis, the ministerial and technical services required by a PIC or Dean belonging to that department. The HOD may seek additional funds and/or manpower from the Institute funds, but the extension of facilities will not wait for sanction of this fund.

All Departments, Centres and TSUs will be routinely monitored by the Institute's Internal Audit unit for examination of records and for physical verification of fixed assets if any. They will also be subject to CAG audit. All HODs and PICs will be fully accountable to the Institute management for their administrative and financial actions, or inactions. PICs and technical staff looking after TSUs are not entitled to any supplementary remuneration. Their accountability to the Institute shall be at the same level as that for the work of the parent department.

Table 1: Technical Service Units (TSUs) at NIT Rourkela.

Sl. No.	Name of TSU		Head of the unit	Overall supervision		Stock Registers	Committee(C) and Dedicated Staff (S)
	Short form	Long form		Permanent	Till DD is appointed		
1.	HC	Health Centre	Sr. MO	Dy. Director	Dean (SW)	EQ,CM, PR, DP	S
2.	SS	Safety & Security Unit	SO	Dy. Director	Dean (SW)	DP	C, S
3.	GH	Guest House	PIC	Dy. Director	Dean (AR)	EQ,CM, PR, DP	C, S
4.	EM	Estate Unit (Civil & Electrical)	EU (C/E)	Dean(PD)	Dean(PD)	EQ,CM, PR, DP	C, S
5.	CS	Civil Construction Unit	PIC	Dean(PD)	Dean(PD)	DP	C, S
6.	ES	Electrical Construction Unit	PIC	Dean(PD)	Dean(PD)	-	C, S
7.	CA	Central and distributed Air-conditioning Unit	PIC	Dean(PD)	Dean(PD)	EQ,CM, PR, DP	C, S
8.	TN	Telephone Network	PIC	Dean(PD)	Dean(PD)	EQ,CM, PR, DP	S
9.	CF	Common class rooms & facilities (including projection equipment)	PIC	Dy. Director	Dean (SR)	EQ,CM, PR, DP	C
10.	BS	Academic Building Maintenance Unit (Including cleaning, water fountains & sanitary services)	PIC	Dy. Director	Dean (SR)	-	C
11.	LG	Lawns, Gardens & Plantation	PIC	Dy. Director	Director	-	C
12.	TS	Transport Services	PIC	Dean (SW)	Dean (SW)	CM, DP	S
13.	FR	Furniture Procurement & Maintenance	PIC	Dy. Director	Director	-	C
14.	CA	Central Auditoriums & Related Facilities	PIC	Dean(SW)	Dean(SW)	-	-
15.	CB	On Campus Business	PIC	Dean(SW)	Dean(SW)	-	C
16.	CM	Community Centre	PIC	Dy. Director	Dean(FW)	-	C
17.	WP	Places of Worship	PIC	Dy. Director	Dean(FW)	-	C
18.	PB	Institutional Information & Publicity	PIC	Dy. Director	Dean(AR)	-	C
19.	OA	Office Automation & Web Site	PIC	Dy. Director	Director	-	C, S
20.	CV	Convocation	PIC	Dean(AA)	Dean(AA)	CM, DP	C
21.	EQ	Major Equipment Management	PIC	Dy. Director	Director	-	C
22.	BP	Book Purchase by Students	PIC	Dean(SW)	Dean(SW)	-	-
23.	SM	Institute Seminars & Distinguished Visitors	PIC	Dean(SW)	Dean(SW)	DP	-
24.	RP	Research Promotion & IPR	PIC	Dean(SR)	Dean(SR)	-	-
25.	TX	Technical Excellence (NITRITE)	PIC	Dean (SW)	Dean (SW)	-	-

EQ: Equipment Register; CM: Consumable Register; DP:Direct Purchase Register; PR: Procurement Register; S: Own Staff; C: Committee; PIC: Faculty/Officer in-charge

5. The Registry:

The Registry is a major constituent of an institute, unique to centres of higher learning. It is an administrative entity, very close in its structure to a department or a centre. It is headed by the Registrar whose position is identical to that of a HOD or HOC. He is supported by a team of Deputy and Assistant Registrars, superintendents, accountants and clerical staff. Its domain of operations spans over all units of the Institute and covers all issues related to personnel, finance and accounts, procurement and contracts and maintenance of permanent records.

These functions are to be clearly distinguished from the activities carried out by the Departments, Centres and Technical Service Units of the Institute heavingsimilar or identical description. This distinction can be articulated as follows:

While the Departments, Centres and TSUs are responsible for the activities and operations and take initiatives and decisions through the due process of law, the Registry will handle all the downstream operations, such as:

- Checking compatibility of a decision and the procedure followed with higher laws and precedence, and authenticating the decision before it is implemented,
- Handling all commercial terms and operations, wherever applicable,
- Maintaining permanent records,
- Interfacing with external agencies,
- Handling all finance, accounts and audit matters,
- Handling all personnel issues – recruitment, records, salaries, pension, leave records, pension and provident fund,
- Managing estate issues – land records, residential quarters allotment and rents, except maintenance and technical matters,
- Managing student admission and maintaining student records,
- Handling all legal matters, court cases and disciplinary issues,
- Handling internal and external mail system,
- Providing administrative guidance to implementing departments, centres and TSUs by publishing well defined regulations and guidelines.

The list of functions enumerated above is not exhaustive, but should give an understanding of the nature of the functions of the Registry. In an operation, whether it is offering a course, publishing a paper, constructing a building, managing a guest house or keeping the class rooms clean, the operation itself requires some specialised knowledge or skill, and therefore, will be the job of the concerned department, centre or TSU, while the higher end of the operation involving administrative and clerical services will remain in the domain of the Registry. Officers of the Registry will be supported exclusively by a team of ministerial staff – superintendents, accountants and assistants while departments, centres and TSUs will be supported by technicians, laboratory and technical assistants. The staff of the Registry will work from their offices and will normally not have any responsibility that requires operation in the field. The Departments, Centres and TSUs will be supported by the Registry through a small number of ministerial staff posted in the Department/Centre or TSU to maintain departmental records and to interface with it.

The Registry is organised in terms of offices or sections, each section being headed by a deputy or an assistant registrar. At present there are sevensections: (1) Academic, (2) Establishment, (3) Finance & Accounts, (4) Purchase & Works, (5) Sponsored Research, Industrial Consultancy & Continuing Education (SRICCE), (6) Technical Services and (7) Internal Audit. In future, depending on need, heterogeneous sections such as SRICCE and Establishment may be further divided; but that is not recommended. The Technical Services Section of Registry should be distinguished from the TSU – Technical Service Unit. While a TSU is responsible for the implementing jobs in the field, the TS section is responsible for making regulations, examining proposals, handling commercial terms and processing bills. The TS section does no field job except those of the Registry itself, e.g. procurement of stationery and printing of publications.

A section may contain one, two or more officers. When there are two or more officers in a section, the seniormostofficer shall be the section-in-charge. Similarly when there is a shortage of officers, one officer shall look after more than one section, maintaining separate identity for each office. [No additional remuneration is admissible for such dual responsibility.] A section shall be further subdivided into "Groups"; a typical group being headed by a Superintendent who is assisted by one or more assistants. The seniormost superintendent may be given overall supervisory responsibility of a section.

The Registry is not expected to have any technical staff except for a skeleton staff to handle its own office equipment – computers, photocopiers, scanners and furniture. Because the skill set needed to function as a ministerial staff is common (except for accounting) across all departments and sections of the registry, they can be, and should be, transferred across desks all over the institute, while technical staff can be transferred within a much smaller set of posts with common skill sets.

The Registrar shall report to the Director, the Chief Executive Officer; but the Registry shall not be subservient to the Director or any functional authority appointed by him in matters of rules. It has the sacrosanct duty of upholding the rule of law. It enjoys autonomy to the extent of quoting the rules and analysing every decision against them. In case of difference in interpretation of a rule, the Registry puts on record the possible alternatives, and the decision of the Director or a higher authority shall be final and binding. The Registry authenticates, but does not initiate nor approve an administrative action except for its own department. No decision of an approving authority involving personnel or finance can be implemented unless authenticated by the Registry.

A purchase or administrative proposal necessarily originates in a department chaired by a HOD or a service unit chaired by a PIC. The Registry examines it against the rules, does fund booking, adds commercial terms, obtains approval of competent authority and prepares and despatches the purchase or work order. Similarly when stores and bills are received, the stores are examined and accepted by the Department or the PIC and certified bills are sent to the Registry for further processing, maintaining records, making payment and preparing accounts statements. The key principle is that all decisions are taken by an executive (Director, Dean, Associate Dean, HOD, HOC, PI or PIC), the Registry handling the papers from that point onwards, particularly from legal and procedural angles. The Registrar, however, remains responsible for maintenance of his own Department and the Sections within it[Accounts, Academic, Establishment, Purchase & Works, SRICCE, Technical Services and Internal Audit] and functions as the Head of the Department of Registry.

A question arises on the functional relationships between the Registrar and the Deputy Director and the Deans, authorities that derive their delegated powers from the director. Organisationally the Registrar reports to the Director and is obliged to follow his directions. It is, however, the duty of the Registrar to advise the director on matters of law; and if such a situation arises he may return a file to the director recording his observations and quoting the relevant sections of the Act, the Statutes or provisions of the Government of India. If the Director, after going through the provisions of law, confirms his decision, the Registrar shall be duty bound to implement it, the accountability, naturally, resting on the director. The same process is valid for all the delegated authorities – Dy Director, Deans and HODs, but with one significant difference. The Registrar shall normally honour their directions within the domains of their delegated responsibilities. He will bring out office orders, place POs, make payments, everything within the lawfully delegated authorities. In case of disagreement with the law, the Registrar may bring the issue to the attention of the Director, whose decision shall be binding on all concerned, the accountability resting on the shoulders of the Director. Organisationally the Registrar shall report to the Director, and no other authority within the Institute.

In addition to day to day duties of the Institute, the Registrar is also the secretary of the Senate, the BWC, the FC and the BOG. He is responsible for preparing the agenda and the minutes. In all cases, the chairmen of the respective committees shall ultimately decide the contents. But before presenting the contents to the chairmen of the committees, the Registrar shall have the examined by the Dean(Ac), Dean(P&D or Infrastructure) or the Director as appropriate. Difference between the two individuals, if any, should be brought to the notice of the final authority, the Director or the Chairman BOG for final decision.

6. Organisational vs. functional Relationships

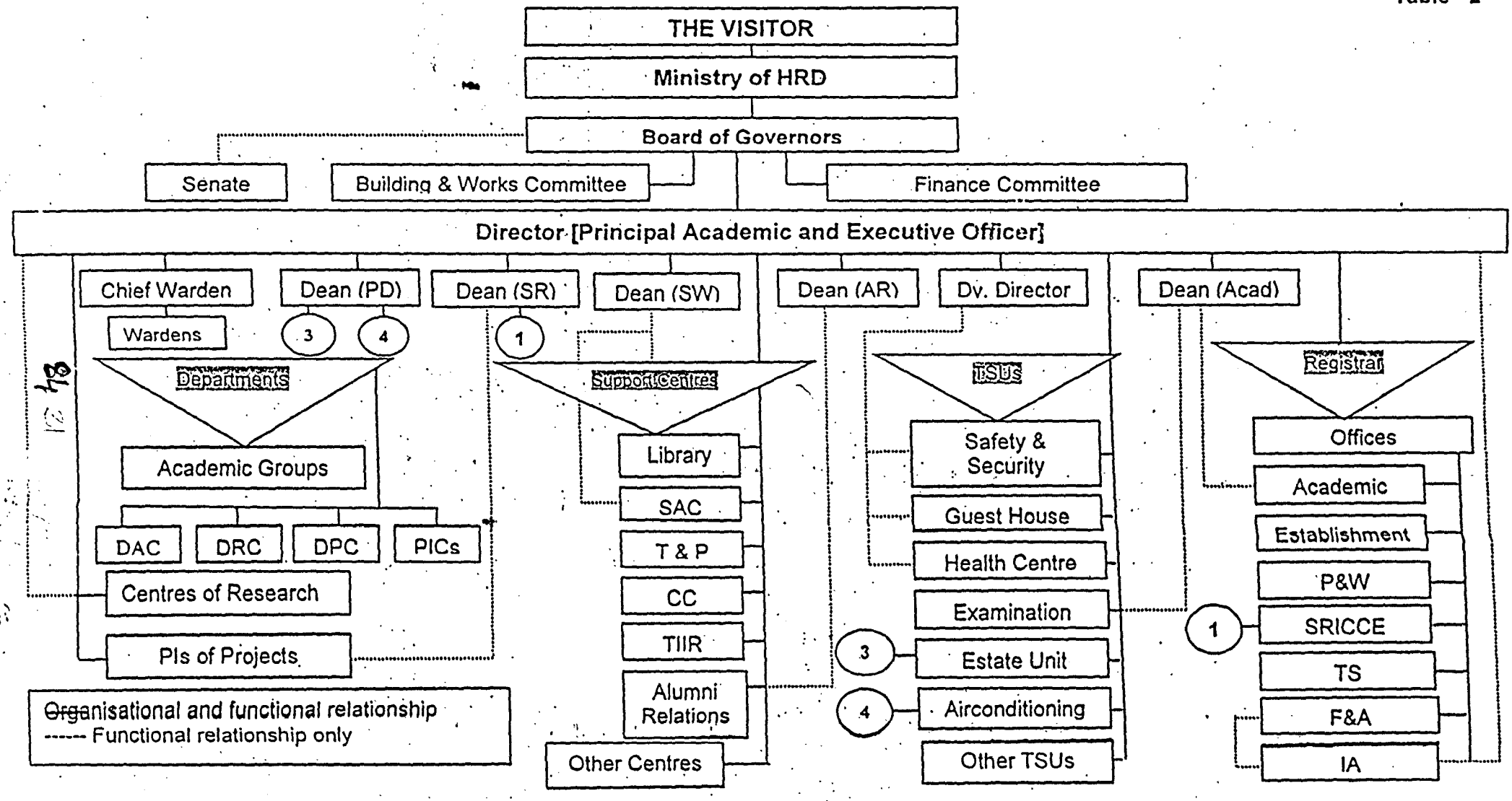
The departments and centres, as well as the Registry have a rather straight forward administrative structure. Every individual employee reports to only one authority that tells him what to do, evaluates his performance, sanctions leave and depends on him for his own performance. The situation is somewhat more complex in case of TSUs, where the personnel are drawn from departments, centres or other TSUs. An institute employee serving a TSU has, in most cases, dual affiliation – one to his substantive post and the other to the assigned TSU. The former is defined as the "organisational" relationship while the latter is a "functional" relationship. Table-2 articulates most of the organizational and functional relationships between components of the Institute.

The supervisor in the substantive post will approve leave and deal with all service matters. It is, however, a matter of courtesy on the part of the employee to keep his functional supervisor informed at all times. Both supervisors, organisational and functional, as well as the employee should mutually work out the schedules of the employee in good faith and in a spirit of cooperation. In case of irreconcilable differences, they may take the help of Deputy Director and Director.

A unique scenario represents the function the two offices – Academic Section and SRICCE. The two sections are headed by officers of the Registry – Deputy or Assistant Registrars. Organisationally the two officers report to the Registrar and take instruction from him. But functionally they report to Dean (Acad) andDean (SRICCE) respectively

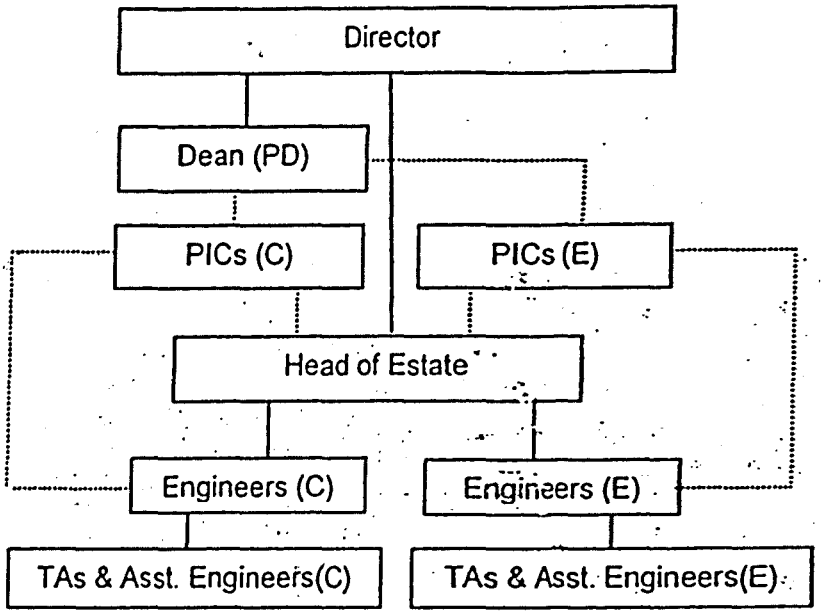
Organisation Structure of Institute Management

Table - 2



Note: 1. Till Dy. Director is appointed, his responsibilities will be distributed among the Deans at the discretion of Director
2. All residual responsibilities remain with the Director which he may delegate to a Dean, HOD or PIC.

Table 3: Detailed Organisational& functional relationships in Estate Unit



Notes:

- There will be up to 4 PICs, 2 for Civil and 2 for Electrical work (Construction and Maintenance) . One PIC may hold dual responsibility.
- Head of Estate shall be at EE or SE level. Engineers (C) and Engineers (E) will be at EE or Engineer level, each given independent responsibility under the supervisory control of Head, Estate.
- Officers at Engineer or higher levels will be given reasonable independence and accountability in their assigned projects for ensuring speed of management.
- Each TA and AE will report to one Engineer or Executive Engineer, as decided by Head of Estate, and be given responsibility accordingly.

and implement their directions directly without routing them through the Registrar. This scenario can be seen as one where the Registry has essentially loaned the services of its officers to Dean (Acad) and Dean(SR) while still retaining administrative control over them.

A similar functional relationship exists between civil and electrical engineers reporting to PICs of Civil and Electrical construction while still retaining their organizational identity within the Estate Department. The director, at his discretion, may assign similar functional relationships for other activities, e.g. Dean (FW) supervising faculty selection or confirmation, Chairman BOT supervising PF withdrawals, PICs of civil and electrical maintenance supervising engineers in estate.

The examples given above illustrate the distinction between organisational and functional relationships. Officers and staff, while remaining within the organisational jurisdiction of their respective parent departments, functionally report to the Head of the operation unit. The situation is akin to the scenario where a firm providing outsourced service to a client places its officers at the latter's disposal while retaining organisational control over them in matters of salary, increment, leave, training etc., their day to day duties being assigned to them by the client.

Whether it is organisational or functional relationship, a supervising officer or faculty shall have the responsibility of assessing the performance of a subordinate without prejudice on the type of responsibility. Similarly, faculty and staff having supplementary responsibilities are expected to respect all duties equally without prejudice to organisational or functional relationships.

7. The Administrative Approach:

NIT Rourkela's administrative philosophy is based on plane common sense with no unique or un-intuitive feature. Still, it needs to be articulated in this document for the benefit of new comers who are accustomed to different, often more evolved principles. The following are a few elements of NITR's administrative philosophy.

a) Every employee (Faculty, officer, technical or ministerial staff) is accountable equally for all his assignments, whether primary (e.g. teaching, research, ministerial work, lab work) or secondary (e.g. a TSU or hostel assignment). Any performance evaluation, including annual assessment, will take into account performance in all assigned responsibilities.

b) Officers and faculty constitute a class apart from the ministerial and technical staff. Their enhanced accountability is not a matter of degree, but of kind. There is quantum jump in expectation and accountability between officers and other staff. Faculty and officers are expected to be self-motivated and to take initiative. For them, while disobeying orders without recording a valid reason remains an offence, "only obeying orders" does not constitute adequate service to the institute. Faculty and officers are expected to create their own work, and to create work for their subordinates. On the other hand, lower staff will not normally be penalized for idling after finishing assigned duties.

c) Officers are expected to educate, monitor and evaluate the work of their subordinates; every officer will be evaluated on the basis of the gross output of his section. That also including the output of all subordinates, his personal efforts being given credit for the team performance.

d) Absence or lethargy of an intermediate officer or staff shall not slow down a work. It is the sacred duty of every higher officer or supervisory staff to take over the job of his subordinate when the latter is unavailable, incapable, lethargic or plain non-cooperative.

No chain is stronger than the weakest link; the chain of command at NITR shall have no weak link, for a stronger link above it will take over the job expected from it.

A by-passed officer or supervisor shall not complain for being sidelined, but shall strive to make himself so valuable that he will be serving the institute even from the side line, and no superior will think of side-lining him in future.

e) Depending on need, higher officials may communicate directly with every person under their command, no matter how many steps below; but notes originating at a lower level need to move up only through the "proper channel."

f) It will be the duty of every employee to save time of his superior. Normally, junior officials will prepare proposals and put up to higher authorities for approval. Approval may be accorded or denied or be returned for modification. Junior functionaries shall never complain that their time was wasted.

g) Senior officials shall not insist on a note to originate from a lower level for initiating a work. In case of possibly controversial ideas, proposals must originate from senior officers, the highest officer convinced of the merit of the proposal. This will insulate subordinate officers from the burden of defending decisions of higher authorities, and decisions they may not be subscribing to.

h) Employees will not be held personally liable for loss or theft of goods under their care or for collateral loss to the institute resulting from an honestly taken wrong decision. Of course, every employee will be accountable for deliberate mischief, conscious negligence of duty or plain theft.

i) There shall ordinarily be no extra compensation for doing the duties normally handled by a superior or junior officer, nor for handling another desk in addition to one's own. Nor, there shall be a deduction in pay if, in the opinion of one's superiors, a desk is lightly loaded. Every employee will give his best to the Institute without counting hours and minutes.

j) Faculty and officers shall normally, but not necessarily, not be required to sign attendance registers, while all other staff will. With advancement of technology, biometric attendance shall be introduced when other physical arrangements are done.

8. Compliance with Act and Statutes

The following statutory provisions, extracted from the NIT Act 2007 and the Statutes of NIT Rourkela are relevant to the management model proposed in this document.

1. [NIT Act, Clause 17(2)] The Director shall be the principal academic and executive officer of the Institute and shall be responsible for the proper administration of the Institute and for the imparting of instruction and maintenance of discipline therein.

2. [Statutes, Clause 19(1 & 2)] The Institute shall establish not more than six Deanships. The Director shall appoint the Deans with intimation to the Chairperson, Board of Governors.

3. [Statutes, Clause 17(14)] TheDirector may, at his discretion, constitute such committees, as he may consider appropriate for smooth functioning of the Institute.

4. [Statutes, Clause 17(16)] The Director may, with the approval of the Board delegate any of his powers, authorities or responsibilities vested in him by virtue of the Act and Statutes to one or more members of Academic or Administrative Staff of the Institute.

5. [Statutes, Clause 17(3)] Subject to the budget provisions made for the specific purpose, the Director shall have the power to incur expenditure in accordance with the procedure as may be laid down in the ordinances.

6. [NIT Act, Clause 18(1)] The Registrar of every Institute shall be appointed on such terms and conditions as may be laid down by the Statutes and shall be the custodian of records, the common seal, the funds of the Institute and such other property of the Institute as the Board shall commit to his charge.

7. [NIT Act, Clause 18(3 & 4)] The Registrar shall be responsible to the Director for the proper discharge of his functions. The Registrar shall exercise such other powers and perform such other duties as may be assigned to him by this Act or the Statutes or by the Director.

Some additional observations that are not articulated in the Act or the Statutes are relevant in context of the Management Model.

1. The Director shall, in all likelihood, come from the faculty cadre of an institute which mutatis mutandis implies that faculty members in their career need to be exposed to a good fraction of the executive functions in their parent institutions. The proposed model by distributing planning and executing responsibilities among many faculty members through departments,centres and TSUs not only saves time of the higher authorities, but gives opportunity to a hundred faculty members to many executive experience in a progressive manner.

2. The NIT is a publicity funded, autonomous organization. To maintain accountability and public trust, it is highly desirable that every file relating to an executive or financial action is seen by at least two independent sections of the institute. Therefore the management model proposed here casts most jobs as combination of four steps – (i) a planning and proposal step initiated by a department, centre or TSU, (ii) a scrutiny step performed by the Registry, (iii) an approval step done by the Director, a Dean or an HOD, and finally (iv) an audit step done by the Internal and CAG audit units.Combining two job functions into one, for example, assigning planning + scrutiny to a department or the Registry will be less trusted by the stake holders.

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3. The BOG is a high level authority whose time is limited and not readily available for day to day jobs. Except the most vital and long lasting policies, all other decisions need to be taken at the Institute level through a process of collective decision making.

In view of the above observations, the following overall model emerges:

a) The Board creates broad policies such as the overall Management Model (this document) and Academic & Non Academic regulations, which are widely circulated and are readily available ;

b) The Director, with assistance of Deans, HODs, faculty, officers and technical staff manages all day to day issues including matching people with jobs dynamically without being constrained on the details: and

c) The Registrar, through his team of Deputy and Assistant Registrars, and ministerial staff, scrutinizes every step of execution against regulations and handles all administrative functions (e.g. bringing out formal orders, examining fiscal issues, dealing with commercial agencies and tax authorities, maintaining both short term and permanent records etc.) without physically executing the actions; and.

d) The Audit unit examines the whole process to ensure that the execution steps do not deviate from approved policies.

Retaining distinct identity of the different authorities BOG, Director (+ faculty & officers), Registrar (+ Registry) and Internal Audit is very desirable.

9. Conclusion:

The provisions of this management model are based on decades of experience within the IIT/NIT system. The institutions offer high quality education at low cost, with limited man power and constraints of Government regulations. It is believed that a formal document articulating the management model will give confidence to faculty and officers and will speed up the operation at all stages. As time proceeds, new departments, centres and TSUs will be added and existing units will be strengthened by providing dedicated resources.The NIT Act squarely puts the responsibility of day to day administration on the shoulders of the director; he also remains accountable for his omissions and commissions to the Board and to the Ministry. Therefore, notwithstanding anything prescribed in this document, the director shall have the responsibility of distributing responsibilities among his colleagues as he thinks fit in consultation with senior faculty members and officers of the Institute.

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National Institute of Technology
Rourkela – 769 008 (Orissa)

No.NITR/RD/ BOG-21/2009/M/268 Dt.14.08.2009

Sub: Appointment of Deans.

The undersigned is directed to inform that the Board of Governors, NIT Rourkela vide resolution BOG–21(2009)-08 dt.19.06.2009 approved the following Deanship positions in accordance with the provisions of the statutes.

Sl. No.	Old Designation	New Designation
1.	Dean (Academic Affairs)	Dean(Academic)
2.	Dean(Students Affairs)	Dean (Student Welfare)
3.	Dean (SRICCE)	Dean (Research & Consultancy)
4.	None	Dean (Faculty Welfare)
5.	Dean (Planning & Development)	Dean (Planning & Development)
6.	Dean (Alumni & Resource Generation)	Dean(Alumni & Resource Generation)
7.	Dean (Administration)	To be abolished.

The Board approved the responsibilities in the functions of the Deans as a temporary measure till proper administrative facilities are created. As per the statutes, HODs can be either Professor or Associate Professor. Till the post of Associate Professor is created by MHRD, it was decided that HODs can be either Professor or Asst. Professor as per present practice.

This issues with the approval of the competent authority.

REGISTRAR

Copy to:

1. All Deans/ Chief Warden/HODs/ HOOs.
2. Finance Officer
3. Asst. Registrar (Estt.)
4. Secretary to Director.

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DUTIES AND RESPONSIBILITY OF DEANS

The following duties and responsibilities have been entrusted to the Deans.

Dean(Academic):

He / She will advice the Director in:

a) Admission and enrollment of students;
b) Finalisation of Academic Calendar, time-table, registration of students for course work and examinations, class room arrangements and all other requirements for proper conduct of class work.
c) Conduct of class tests and coordinating the finalization of session's evaluations and for ensuring the timely declaration of results.
d) Supervision of the maintenance of up to date academic records of all categories of students;
e) Publication and distribution of the syllabi;
f) Organizing the meeting of all the Institute level academic bodies;
g) Arranging the issue of all the academic certificates, medals and prizes to the students;
h) To arrange for conduct of those examinations which are to be conducted by the Institute as stipulated in the Institute regulations.
i) To formulate policies for the conduct of research and steps to maintain suitable standards by implementing the Board of Governors/ Senate decision.
j) To execute the policy of the Senate in the conduct of P.G., Ph.D and other research programmes including the examination of the thesis.
k) To co-ordinate for the conduct of Convocation.
l) All proposals to modify the teaching programmes will be considered by BOAC for which Dean(Academic) i.e. the Chairman and if approved will be sent to the Senate for formal approval.
m) To admit sponsored Early Faculty Induction Programme and Quality Improvement Programme candidates.
n) To suggest the Director to take suitable steps from time to time to strive for the high academic standards.
o) Formulating proposal for new courses and in organizing meetings of faculty members and external experts for this purpose in this regard.

Dean(Planning and Development)

He / she will advice the Director in the following:

a) Planning the expansion and diversification of institutional activities and preparation of all developmental proposals, to the extent up to submission of plan & estimates related to Civil, Electrical, Works, Sanitary, network system etc.
b) Maintenance of all necessary statistical data regarding plan & projects required for completion of various reports periodically required to be sent to Ministry of Human Resource Development and other agencies.

c) Providing necessary data for the budget and new estimates & plans to the Building & Works Committee to the Registrar.
d) He /she will assist the Director in the supervision of the construction and the maintenance work of buildings, roads, water supply, sanitation, lawns and gardens, communication networks, water coolers, air conditioners, telephones etc.

Dean(Students Welfare):

a) He / she will advice the Director in organizing the students' counseling.
b) He/she will be responsible for the publication of students' Magazines, News, Bulletins, News letters etc.
c) He / she will advise the Director in matters related to the students; discipline and welfare.
d) He/she will assist the Director in matters related to the Students Union /Association/ Council.
e) He/she will coordinate the NCC, NSS, Games, Swimming Pool, Sports, Cultural and Co-curricular and Extra-curricular activities of the students.
f) He/she will conduct the enquires of students indulged in indiscipline.
g) He/she will correspond with parents/Guardians of students about their progress and individuals problems / welfare.
h) Coordinate co-curricular activities (technical festivals, quizzes etc.) for the students.

Dean (Faculty welfare):

He / she will advice the Director in matters related to:

a) Deputation of faculty to various institutions under Quality improvement Programme under rules applicable to them.
b) He /she will advice the Director for deputation of the faculty members to various conferences, seminars, short-term courses, training programmes, foreign teaching / training assignments etc.
c) He/she will chair the committee meetings of the evaluations of papers submitted or to be submitted to the conferences / seminar by the faculty members.
d) He/she will assist the Director in organizing training programs for faculty.
e) He /she will assist the Director in maintaining the discipline and work ethos among the various departments and between the faculty members.
f) He /she will assist the Director in maintaining the high academic standards and achieving academic excellence in the institution.
g) Supervision over faculty discipline, integrity and commitment.

Dean (Research and Consultancy):

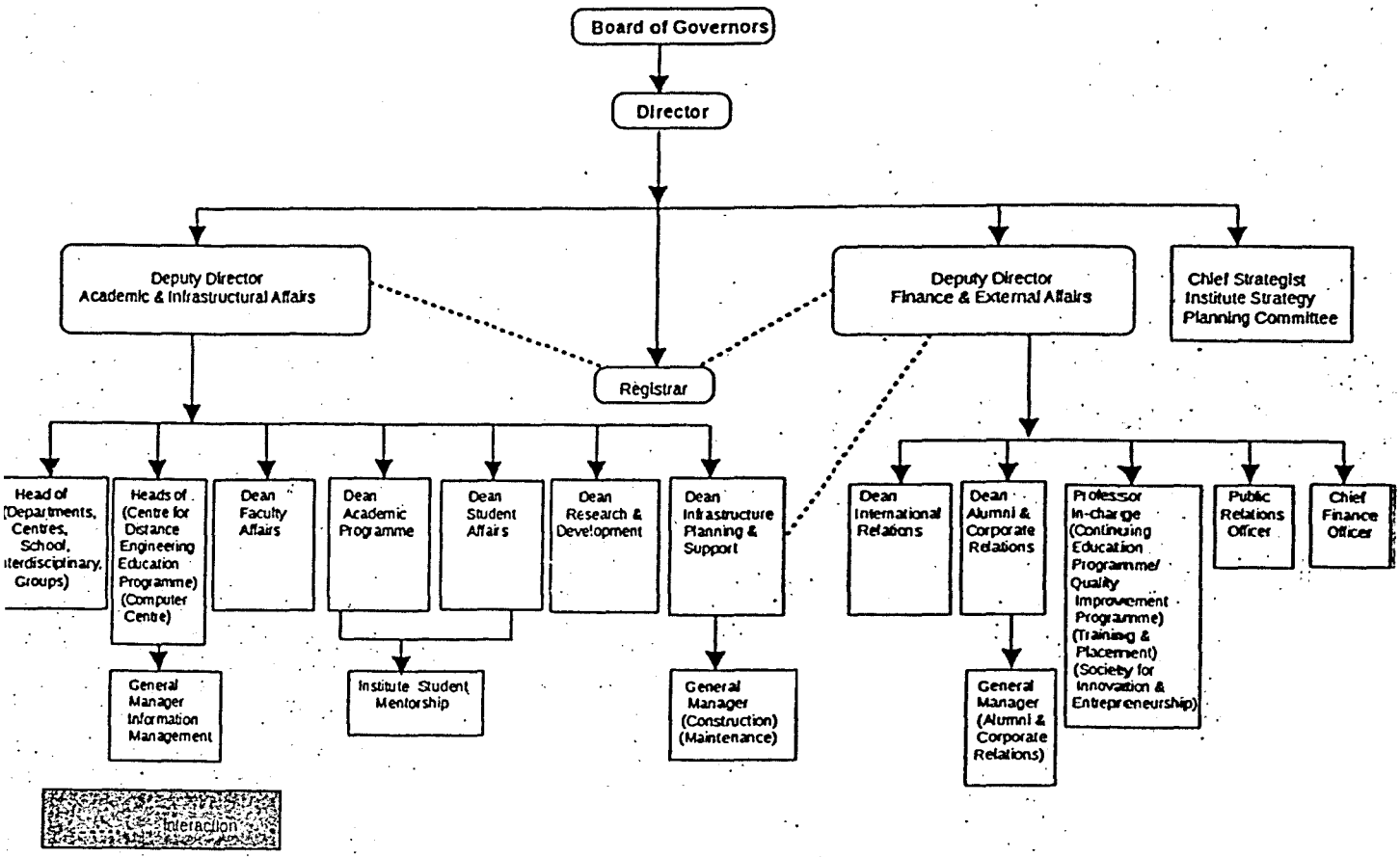
He /she will advice the Director in matters related to:

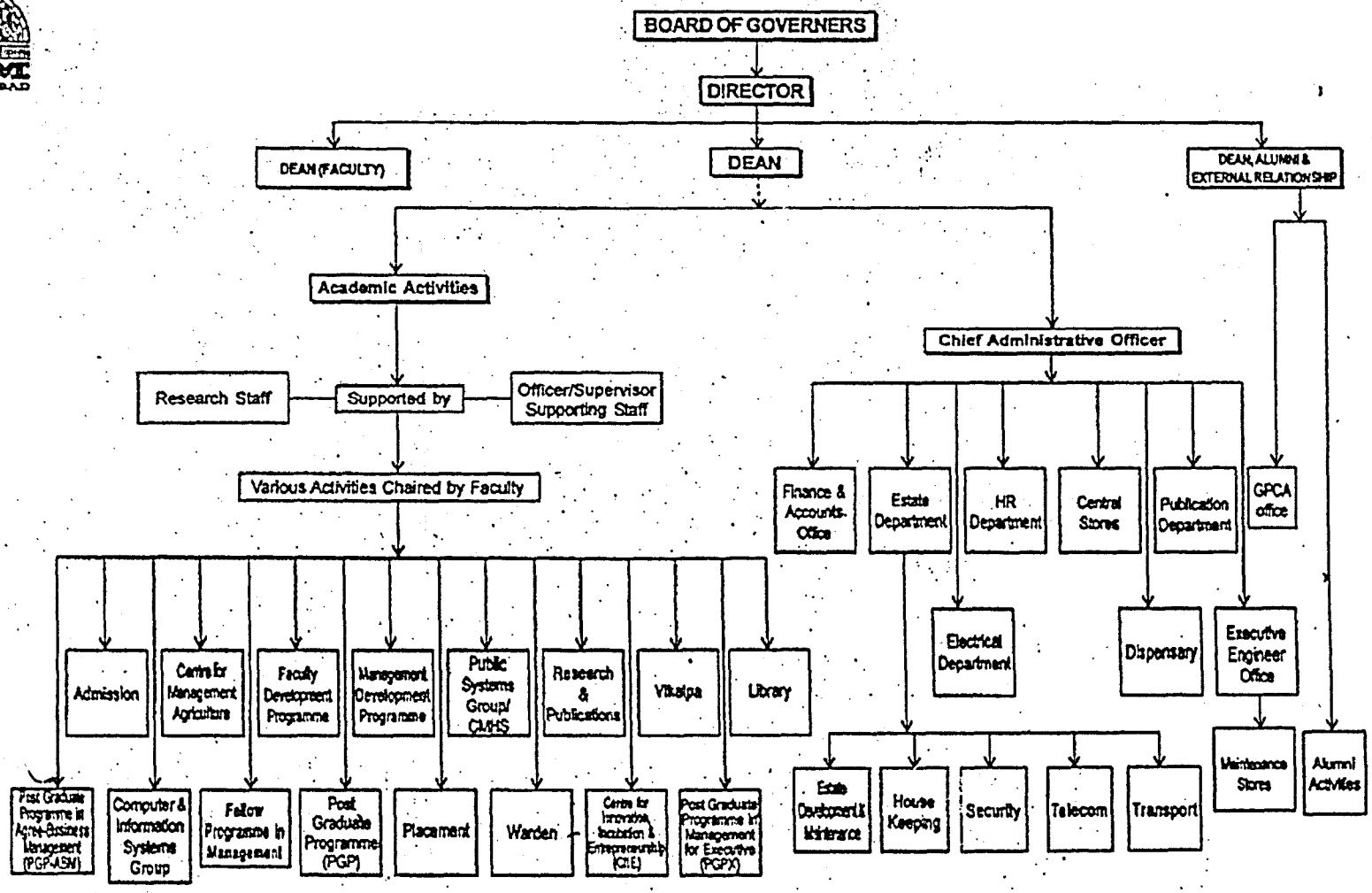
a) Frame rules for industrial sponsored research and consultancy.
b) Create and maintain database regarding faculty expertise.
c) Facilitate through his/her office faculty in procuring equipments necessary to conduct research / consultancy work, recruitment of project staff.
d) Provide guidance for submitting proposals to funding agencies such as Department of Science and Technology (DST), Bhabha Atomic Research Centre(BARC), Board of Research in Nuclear Sciences (BRNS), Indian Space Research Organisation (ISRO), Defense Research and Development Organization (DRDO), Aeronautics Research and Development Board (AR&DB), Ministry of Information Technology etc
e) Monitoring the physical targets and utilization of funds in respect of Projects & Consultancy and in the preparation of relevant papers for submission of progress reports.
f) In the efforts to expand and monitor the activities of consultancy, testing and sponsored research of Institute and to ensure submission of progress reports;
g) In coordinating the formulation and conduct of non-formal and continuing education and extension programmes.
h) To arrange for the agenda and organization of the meeting for procurement of equipments related to projects and testing & consultancy.

Dean (Alumni Relations and Resource Generation)

He /she will advice the Director in matters related to:

a) To keep a record of Alumni and correspond with them.
b) To provide assistance to Alumni in dealing with Institute in matters of records, certificates etc.
c) To correspondent with various Alumni Associations.
d) To seek help from Alumni to enable students to do their projects both inside and outside the country.
e) To seek help from Alumni for growth of Institute-Industry partnership.
f) To seek contributions from Alumni and others for the growth and development of the Institute.
g) Any other matter related to Alumni Relations and Resource Generation.


Board of Governors
Director
Deputy Director
Academic & Infrastructural Affairs
Deputy Director
Finance & External Affairs
Chief Strategist
Institute Strategy
Planning Committee
Registrar
Head of
(Departments,
Centres,
School,
Interdisciplinary,
Groups)
Heads of
(Centre for
Distance
Engineering
Education
Programme)
(Computer
Centre)
Dean
Faculty
Affairs
Dean
Academic
Programme
Dean
Student
Affairs
Dean
Research &
Development
Dean
Infrastructure
Planning &
Support
Dean
International
Relations
Dean
Alumni &
Corporate
Relations
Professor
In-charge
(Continuing
Education
Programme/
Quality
Improvement
Programme)
(Training &
Placement)
(Society for
Innovation &
Entrepreneurship)
Public
Relations
Officer
Chief
Finance
Officer
General
Manager
Information
Management
Institute Student
Mentorship
General
Manager
(Construction)
(Maintenance)
General
Manager
(Alumni &
Corporate
Relations)
Interaction


BOARD OF GOVERNERS
DIRECTOR
DEAN (FACULTY)
DEAN
DEAN, ALUMNI & EXTERNAL RELATIONSHIP
Academic Activities
Chief Administrative Officer
Research Staff
Supported by
Officer/Supervisor Supporting Staff
Various Activities Chaired by Faculty
Finance & Accounts Office
Estate Department
HR Department
Central Stores
Publication Department
GPCA office
Admission
Centre for Management Agriculture
Faculty Development Programme
Management Development Programme
Public Systems Group/ CMHS
Research & Publications
Vikalpa
Library
Electrical Department
Dispensary
Executive Engineer Office
Post Graduate Programme in Agri-Business Management (PGP-ABM)
Computer & Information Systems Group
Fellow Programme in Management
Post Graduate Programme (PGP)
Placement
Warden
Centre for Innovation, Incubation & Entrepreneurship (CIIE)
Post Graduate Programme in Management for Executive (PGPX)
Estate Development & Maintenance
House Keeping
Security
Telecom
Transport
Maintenance Stores
Alumni Activities

Annexure- A4

Delegation of Administrative Powers

Particulars	Categories of Employees	Approving Authority (within the approved Budget)
Establishment/Personnel Matters (Increment, LTC, etc.) Except Leave mentioned below	Dy. Director, Deans, HODs, Chief Warden & Registrar	Director
	Faculty & Officers except Dy. Director, Deans, HODs, Chief Warden & Registrar	Dy. Director *
	All other staff members	Registrar
CL	All employees	HOO / HOD
Com. Leave exceeding 7 days not involving hospitalization, Advance Leave,EOL up to 90 days, Leave involving private foreign visit.	All employees	Director
EOL exceeding 90 days	All employees	Board of Governors**
Permission to Travel within India for employees (all funds)	Dy. Director, Deans, HODs, Chief Warden, Registrar	Director
	Faculty members & Officers except above	Dy. Director *
	All other staff members	Registrar
Permission to Travel within India for invitees to Institute	All invitees from project/SAC funds	Dean (SR)/Dean (SW)
	Seminar Speakers form Dept. Grant (without airfare)	HOD
	Institute Seminar Speakers (without airfare)	PIC (Inst. Seminar)
	Examiners (with / without airfare)	Dean (AA)
	All other categories and for Seminar Speakers with airfare	Director
Permission to Travel within India for students	On Academic Work (Department Operating Grant or Project Funds)	HOD
	On SAC Work (From SAC Funds)	Dean (SW)
Foreign travel not involving training of Personnel	All Employees (except Director)	Director
Foreign travel involving training	All Employees (except Director)	Chairman, BOG
Foreign visit (All types)	Students	Director
Property related transactions	Faculty & Officers	Director
	All other staff members	Registrar
Medical Referral for treatment outside CWSH/IGH, Rourkela	All employees	Dy. Director *
Forwarding of Application or NOC for outside job	Dy. Director, Deans, HODs, Chief Warden, Registrar	Director
	Faculty members & Officers except above	Dy. Director *
	All other staff members	Registrar
Honorarium / Incentive	All employees	Director
Suspension, Revocation of suspension, penalty	Faculty & Officers	Board of Governors**
	All other staff members	Director
Recruitment & Resignation	Faculty & Officers	Board of Governors**
	All other employees	Director

* Director will look after the duties of Dy. Director and Dean (FW) will approve EL, HPL and Medical leave for all faculty and officers except Dy. Director, Deans, HODs, Chief Warden, Registrar for one year or till Dy. Director is appointed which ever is earlier

** Chairman, BOG at his discretion, may consider approval on behalf of the Board when BOG is not scheduled to meet in near future.

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Delegation of Financial Powers

Nature of power	Expenditure Limit (within approved Budget)	Competent authority	
Prior (in-principle) administrative approval for processing of Purchase proposals subject to budget provision being available	Up to Rs. 15,00,000	Not Required	
	Up to Rs. 5,00,00,000	Director	
	Above Rs. 5,00,00,000	FC → BOG	
Prior (in-principle) administrative approval for processing of Works proposals subject to budget provision being available	Up to Rs.15,00,000	Not Required	
	Above Rs. 15,00,000 but upto Rs. 25,00,000	Director	
	Above 25,00,000 but Up to Rs. 2,00,00,000	BWC (Minor Construction and Maintenance)	
	Above Rs. 2,00,00,000	BWC → BOG (Major Works including Maintenance)	
Approval of Fund Booking and Issue of Purchase Order / Work Order	Up to Rs.50,000	HOD / HOC / Registrar / PI (Projects) [from respective Grants / Projects]	
	Up to Rs.1,00,000	Dean(PD)	Civil / Electrical Maintenance Fund. (Plan and Non-Plan).
		Dean (SW)	Student Activity Fund
		Dean (SRICCE)	Consultancy and Sponsored Research Projects Fund.
		Dean (AR)	Alumni Fund
	Up to Rs.2,00,000	Dy. Director*	Institute Fund (Plan and Non-Plan except Civil & Electrical Construction and Maintenance)
	Up to Rs.5,00,000		All Other Funds
	Above Rs.2,00,000	Director	Institute Fund (Plan and Non-Plan)
	Above Rs.5,00,000		All Other Funds
Sanction of cash advance to employees	Up to Rs. 25,000	HOD / HOC / Registrar / PI (Projects) [from respective Grants / Projects]	
	Up to Rs. 50,000	Dean(PD)	Civil / Electrical Maintenance Fund (Plan and Non-Plan)
		Dean (SA)	Student Activity Fund
		Dean (SRICCE)	Consultancy and Sponsored Research Projects Fund.
		Dean (AR)	Alumni Fund
	Up to Rs. 50,000	Dy. Director *	Institute Fund except Civil / Electrical Maintenance Fund
	Up to Rs.1,00,000		For all Other Funds
	Up to Rs.10,00,000	Director	For all Funds
Sanction of Advance to outsiders	As per Purchase and Works Procedure		
Sanction of Payment against approved expenditure. [passing of bills]	Up to Rs.2,00,000	Registrar	For all Funds
	Up to Rs.10,00,000	Dean (SR)	For SRICCE Funds
	Up to Rs.10,00,000	Dy. Director*	For all Funds
	Beyond Rs. 10,00,000	Director	For all Funds
(a) Routine monthly payments: Salary/Pension/Scholarship etc. (b) Statutory payments: Electricity/ Water/Telephone bill, Govt. Taxes etc.	All cases	Registrar	For all Funds [A monthly summery report of all such approvals made by Registrar to be placed before Director for information]

* Director will exercise the power of Dy. Director till Dy. Director is appointed.

* Financial proposals including Bills will need examination and comments of concerned functionaries before being presented to higher authorities.

Annexure- A5

Item No. 309-39 (2014)-06 (i)

राष्ट्रीय प्रौद्योगिकी संस्थान, राउरकेला
National Institute of Technology
Rourkela - 769 008

Prof. Sunil Kr Sarangi, FNAE
Director

प्रो: सुनील कुमार षडंगी
निर्देशक

No. NITR/DR/proposal/2014/L/53
Date: February 06, 2014.

Shri B. S. Sudhir Chandra
Director (Project & Planning) &
Chairman, BOG, NIT, Rourkela
Bangalore Metro Rail Corporation Ltd
3rd Floor, BMTC Complex
K.H. Road, Shanthinagar,
Bengaluru - 560 027.

Sub: Permission for hiring services of Shri Narayan Pati as a Senior Industrial Relations Executive.

Dear Sir,

Industry Institute Interaction is a key activity in institutes of higher learning, particularly in the field of engineering and technology. We are under pressure from the Government of India to show performance in this area. One of the major initiatives that we have taken is the establishment of TIIR (Technology Innovation and Industry Relations), Centre. The organisation of TIIR is making progress, a dedicated building is expected to be in full fledged operation by end of June this year. We have been looking for an executive officer who will be dedicated to promotion of industry institute interaction. It is hard to find such people.

Fortunately I have received a proposal from Shri Narayan Pati who has retired last month from Rourkela Steel Plant. Before retirement he served as the GM (Town Administration) and dealt in social and public relations issues, including CSR. His experience and personality match with our requirement very well. I am enclosing a copy of his bio-data for your kind perusal.

I have known Shri Narayan Pati for a decade. Everyone of Rourkela knows him an efficient person involving administrative and social relations, specifically in the steel industry. I personally believe that Shri Pati is immensely suitable for the job at hand.

I propose to hire services of Shri Narayan Pati as "Senior Industrial Relations Executive" on contract basis. If approved, we can offer him a compensation of Rs.50,000/- per month and residential quarters on payment of appropriate license fee at standard rate for a period of one year. He may, at his discretion, perform minor consulting jobs for other agencies to supplement this income.

Submitted for kind approval of Chairman, BOG.

With regards,
Yours sincerely,

Sunil Kr Sarangi

Encl: Bio-data of Shri Narayan Pati

दूरभाष/Phone : 0661 - 2472050 (O), 2472081 (R), मोबाइल/Mobile : 94370 41081
फैक्स/Fax : 0661 - 2472926, 2462999, ईमेल/E-Mail : director@nitrkl.ac.in
Website : www.nitrkl.ac.in

To

The Director,
National Institute of Technology,
Rourkela.

Sub: A Suitable assignment in NIT, Rourkela.

Sir,

I have concluded my career as General Manager (Management Services) in Steel Authority of India Ltd., Rourkela Steel Plant after a span of 35 years. I am proud to have grown/developed in SAIL a Maharatna Central PSU Company. I am in search of a suitable assignment suiting to my calibre. National Institute of Technology, Rourkela is a rising star institution at the national level. Resting on the telephonic talk I had with your goodself on 31st Jan.' 2014, I would like to present myself for considering me for a suitable assignment in this prestigeous institution of national importance. In this regard, I am enclosing herewith my bio-data for your kind perusal and consideration.

Thanking you,

Faithfully yours,

Encl: As above.
Rourkela
1st February, 2014

(Narayan Pati)
Ex-General Manager(MS),SAIL,RSP
C – 11, Sector – 19,
Rourkela – 769005
Odisha

BIODATA

Name	:	Narayan Pati, ex- General Manager, SAIL, Rourkela Steel Plant.
Present Residence	:	C – 11, Sector – 19, Rourkela – 769005, Odisha.
Contact No.	:	8895500606
e-mail	:	narayanpati@rocketmail.com
Academic Education	:	M.A. in Public Administration, M. A. in Political Science & Graduation in Law (Utkal University).
Professional Education:		Post Graduate Diploma in Social Work (Calcutta University).
Career movement	:	35 years of illustrious career in Central PSU SAIL. Joined SAIL, Rourkela Steel Plant on 22-5-1979 as Management Trainee (Administration) and worked in various capacities in different Departments of RSP like Town Administration managing 24,000 houses, 3750 shops and 15,000 acres of land of the Company involving allotment, Town Engineering executing construction & maintenance jobs and evictions, worked as HOD of Educational Department involving several educational institutions, colleges/schools in township, committed continuous improvement work and upkeep of greenery in the vast steel township & Fertilizer township, effective work executed for improvement in environment for lakhs of residents, Human Resource Management, CSR, Protocol & Hospitality & Business Excellence etc.. Last position held - GM (Management Services).
Personality inputs	:	A frontier personality promised with bold and innovative/creative dedication of long years towards Management Development in a central PSU - SAIL. Distinctive contribution to human values with dutiful attitude for HR, Environment & Hospitality Management. Redefined outlook on life for the cause of physically challenged people and especially the mentally retarded children. Always quite optimistic to bring smile on mentally retarded faces and make them stand on their own in life. His working style has inspired numerous managerial & other people to walk on his path to inject harmony and peace in many institutions & socio-cultural organizations to function smoothly. Motivational speeches in many educational institutions. Innovative and creativity is also a unique style.

Contd.....2....

Awards received :

1) Ray Bahadur Durga Das Gold Medal for standing first in M.A. Examination in Utkal University.
2) Jawahar Award for meritorious service in Rourkela Steel Plant.
3) Rajiv Gandhi Sadbhabana Award from Hon'ble Governor of Odisha for Cultural and Social performance.
4) Kural Samman by Hon'ble Minister Civil Supplies for Social work.
5) Padma Charan Samant Singhara Samman by Hon'ble Minister of POanchayat Raj at Puri in the Annual Day celebration of oUtkal Samaj.
6) Rajbhasa Kirti Samman 2009 in Jodhpur Rajsthan.
7) Natyabandhu Award – 2009
8) Rajbhasa Ratna in 2010 at Mathura by Akhila Bharat Rashtrabhasa Sammilan.
9) Anjali Seva Samman – 2010 at Bhubaneswar.
10) Utkal Mail Samman – 2012 at Bhubaneswar

Institutional positions holding :

1. Adviser, National Institute of Personnel Management.
2. President, Youth Hostels Association of India, Rourkela.
3. Life Member of All India Management Association of India.
4. Honorary Secretary of Home & Hope (An institution of mentally challenged).
5. President, Kalinga Kala Parishad
6. Life Member, National Safety Councial.
7. Life Member, National HRD Network.
8. President, Ispat Kala Parishad
9. President, Sangeet Shilpi Samaj.
10. President, Bharat Scouts and Guides.

Travels :

i) Advanced Management Programme at Brisbane, Australia, Bangkok of Thailand & Singapore through MDI, Gurgaon.
ii) Advanced Management Programme at Sanghai organized by All India Management Association.

o0o

RAJIV GANDHI FORUM, ORISSA

Affiliated to

Rajiv Gandhi Foundation, New Delhi

RAJIV GANDHI SADBHAWANA AWARD-2007

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This is to Certify that ..... *Sri Narayan Pati, DGM I/c (CSR) Rourkela Steel Plant, Rourkela* .....

has been awarded in the state level Rajiv Gandhi Sadbhawana Award 2007

as/ in ..... *Popular Organiser (Social & Cultural)* .....

of the year 2007 on 21st May 2007 in the occassion of 16th Death Anniversary of Bharat Ratna former Prime Minister Rajiv Gandhi.

Hon'ble Governor of Orissa
Chief Guest

Hon'ble Leader, Opposition OLA
Chief Speaker

Hon'ble Union Minister, RD
Govt of Haryana

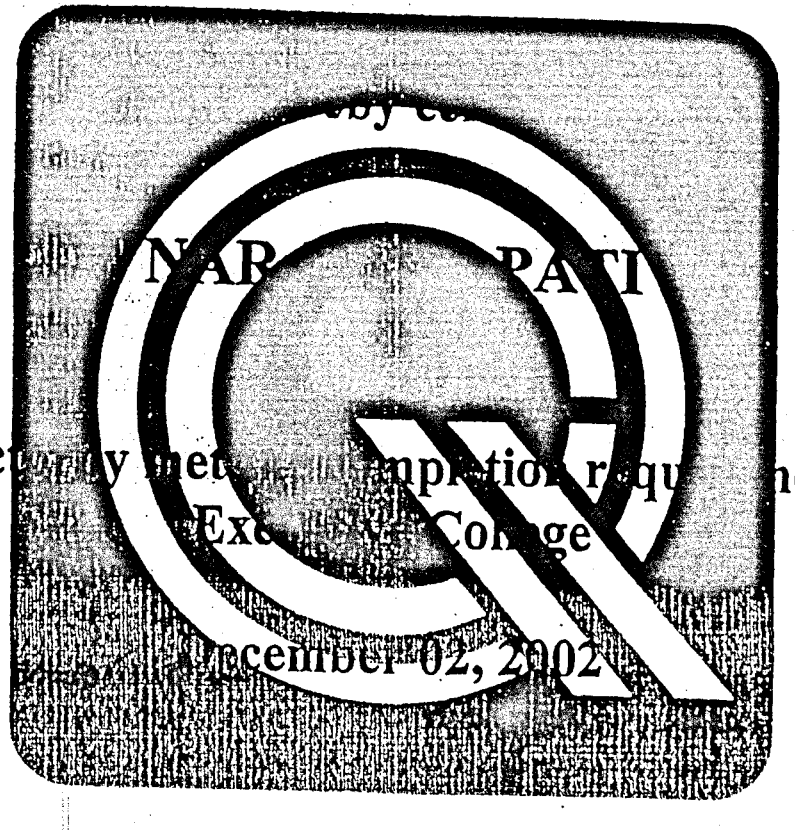
Former MP, Chief Minister, RGF
Govt of Haryana

Working Chairman, RGF

Gen. Secretary cum Chief Advisor, RGF

THE QUALITY COLLEGE®

A Division of Philip Crosby Associates



has satisfactorily met completion requirements for the
Executive College

December 02, 2002

Ravinder Singh
Chief Operating Officer, Institute of Quality Ltd.

Philip B. Crosby
Founder of Philip Crosby Associates

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स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
राउरकेला इस्पात संयंत्र, राउरकेला
ROURKELA STEEL PLANT, ROURKELA

Service Certificate

This is to certify that

Shri Narayan Pati

Pl. No.: 41525 Designation: General Manager

of Management Services Department

was in our employment from 22-05-1979

and superannuated from service, on 31-01-2014

We wish him/her all happiness.

Rourkela

Dated 31-01-2014

Chief Executive Officer

SAIL, ROURKELA STEEL PLANT PAY SLIP

Name / Bank A/c.No.	Personnel No.		Dept.										
PATI NARAYAN 37/10165201229	41525		700131	509	95	73000.00	68047.00		281.00	2490.00	2865.00	100.00 29	2014 JAN

Leave Availed CL	Leave Availed EL	Leave Availed HPL	Leave Balance CL	Leave Balance EL	Leave Balance HPL	Days Paid	Days Adj.	Bon. Days	Rew. lve.	PL+Spl.Pay	Reward	Inc Bonus	VPF	C.P.F.	Med. Chc.	Amount Code	File No. Bill No.
		2	3	270.0	535	31.00		30.00	1.00		833.33 341.35	93.60	35000.00	17188.00	60.00	300.00 30	1B 144

Conv. Adv. Bal	HBA Bal.	PF Loan Bal.	Fest. Adv. Bal.	PL+Spl.Pay (Rate)	Basic Pay (Rate)	D.A (Rate)	Energy/Actg. All	C Shift/Cant	PH Pay/Fix Incent	P.F. Loan Int.	P.F. Loan	C.T.D.	Amount Code	IT PAN
					73000	68047.00							225.00 31	ABJPP4556E

C.P.F. Bal (Own)	C.P.F Bal (Coy)	VPF Bal.	SESBF Bal.	OT HR/PH All	Elec.Rdg./Units	H.R.Allow	Trans. Sub	L.T.E. Reimb.	H.B. Adv.	Conv. Adv.	Festival Adv.	Amount Code	Paise Adj.
3282872.00	3037227.00	2993112.00	243436.57 312575.00		9670 S 550							240.00 32	0.51 0.97

Year Till Date Totals

NSC	NSC Int.	ELSS	SESBF	LIP	ULIP	CPF+VPF	PPF	Amount Code	Amount Code	H.B.A. Int.	Income Tax	EFBVS	Amount Code	Gross Earnings
			30350			567086		485.18 122 3760.00 151	2190.00 125 7519.00 157		54180.00	30.00	500.00 46	177323.46

C.T.D+Don+Edn.	NSS+JD	Infra	NHB+HBA	Emp.decl.income	Inc(Dir.)/80ccc	Inc(Sal)/Perk	Inc. Tax/Prof	Amount Code	Amount Code	Ins. Premium	Co-Operative	Prof. Tax	Amount Code	Total Deductions
1000						2203270 170516	521760 2200	3760.00 158 12030.00 166	1504.00 160 3760.00 167			200.00		13659.46

	Amount Code	Amount Code	Amount Code	Amount Code	Amount Code	NET PAY
SUBMIT PROPERTY RETURN BY 31ST JAN POSITIVELY ONLINE						63664.00

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स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
राउरकेला इस्पात संयंत्र
ROURKELA STEEL PLANT

OFFICE OF THE EXECUTIVE DIRECTOR (PROJECT)
ROURKELA STEEL PLANT

TO WHOM IT MAY CONCERN

This is to certify that Shri Narayan Pati was working in SAIL, Rourkela Steel plant in the rank of General Manager. He has significant expertise in the field of Adminstration, CSR, Human Resource Management, Protocol & Hospitality Services and Liaison activities. He has put an excellent impact in Rourkela Steel Plant and in the in society at large with his oratorial and analytical mind. He has great interest in developmental activities both in education, social, cultural and institutional field. He is hard working , sincere and an asset for any organization.

I wish him all success in life.

2/2/2014

S. K. Acharya.
Executive Director
SAIL, Rourkela Steel Plant

एस.के.आचार्य/S.K. ACHARYA
कार्यपालक निर्देशक (परियोजना)
Executive Director (Projects)
सेल,रा.इ.सं.राउरकेला/SAIL, RSP, RKL

राउरकेला 769011, ओड़िशा, दूरभाष: 0661–2510050, फैक्स: 0661–2510085, ई–मेल: rkl_cocrsp@sancharnet.in
Rourkela 769011, Orissa, Phone:0661-2510050, Fax:0661-2510085, E-mail:rkl_cocrsp@sancharnet.in

STEEL AUTHORITY OF INDIA LIMITED

ROURKELA STEEL PLANT

JAWAHAR AWARD FOR EXECUTIVES 2002

SHRI NARAYAN PATI

has made significant contributions in the field of Protocol & Hospitality services. Sri Pati has been very effective in synergising and developing a responsive team for taking prompt and timely action. His excellent organising ability, co-ordination and rapport with the Government and other agencies has helped in developing and building effective interaction channels with the external environment.

In recognition of his outstanding performance, Shri Pati is hereby conferred this award.

Rourkela
1st April, 2003

(Dr. Sanak Mishra)
Managing Director

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MEMORANDUM OF UNDERSTANDING

between

NATIONAL INSTITUTE OF TECHNOLOGY
Rourkela, Odisha

And

MULTI DISCIPLINARY CENTRE ON
SAFETY,HEALTH AND ENVIRONMENT
[A Government of Odisha Sponsored Autonomous Institute)
Bhubaneswar, Odisha

For Collaborative Course on
"M.Tech. in Safety Engineering"

MEMORANDUM OF UNDERSTANDING
between
NATIONAL INSTITUTE OF TECHNOLOGY, Rourkela, Odisha, India
and
MULTI DISCIPLINARY CENTRE ON SAFETY,HEALTH AND ENVIRONMENT
Bhubaneswar, Odisha, India

Whereas the National Institute of Technology [NIT] , is a publicly funded Institute of higher learning for engineering and technology under the Ministry of Human Resource Development, Government of India located in the steel city of Rourkela, Odisha. The NIT, Rourkela is one of 30 National Institutes of Technology in India and has been recognized as an Institute of National Importance by the National Institutes of Technology Act, 2007. It aims for the promotion of technical education, training, capacity building, research, documentation and consultancy activities in all branches of engineering.

Whereas the Multi Disciplinary Centre on Safety, Health and Environment(MDC on SHE), a Government of Odisha created and sponsored organization and a leading NGO in the state aims at creating awareness among the employees, employers, opinion makers, trade union leaders and NGOs in the field of safety, health, environment, pollution control, prevention of chemical accidents, hazardous substance management etc. through education, training, workshops, seminars and action oriented programmes. The objective of this Institution is to impart education and training on a continuous basis in these fields to the industrial workers, supervisors, managers; to act as a R&D Centre; to develop Industrial Hygiene Laboratory; to develop an updated Library; to serve as a Think Tank and to promote a modern training centre for the benefit of all concerned.

The MDC on SHE, to its credit has earned the distinction of conducting regular **'Post Diploma Course on Industrial Safety'**, approved by the Directorate of Technical Education and Training (DTE&T), Odisha and affiliated to State Council of Technical

Education and Vocational Training (SCTE&VT), Odisha in addition of promoting specialized **First Aid Training** module meant for industrial employees of factories and mines. The certificates issued to the successful participants by the institute are recognized under the Factory Act-1948 and under relevant rules and regulations under the Mines Act-1952.

In past, the MDC on SHE have addressed issues relevant to industry, administration, regulators including ' Technological / Industrial Disaster Management ', 'Prevention and Management of Chemical Accidents' in association with NIDM , Ministry of Home Affairs, Government of India at its own institute at Bhubaneswar.

Whereas both **NIT and MDC on SHE** have common overall objectives, and overlapping scope of activities and are working with potentially complementary methodologies

Therefore

Both parties undertake to enter into this **Memorandum of Understanding** to allow them the opportunity and the formal vehicle to develop and implement mutually beneficial and agreed upon initiatives. Both the parties mutually agree to conduct Collaborative Course on " **M.Tech. in Safety Engineering** " from the academic session 2014-15.

GENERAL AREAS OF INTEREST

Both parties have identified the following general areas of interest common to both institutions:

- Exchange information / knowledge in the field of Safety Engineering.
- Development of Training Module.
- Development of research collaboration, documentation and publication.
- Mutual exchange of faculty / staff for Training, Research, Laboratory and Library facilities.
- Joint organization of seminars, workshops and training on topics of common interests.

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SPECIFIC AREAS OF COOPERATION

Both parties have further identified the following concrete areas of cooperation between the two institutions that can be taken up from the academic year 2014-15:

- Conduct regular Course on **M.Tech. in Safety Engineering**
- Prepare mutually agreed **Syllabus** for the M. Tech. Course in Safety Engineering.
- The Course will be conducted under the joint names of NIT, Rourkela and MDC on SHE, Bhubaneswar. In addition, both class rooms will be connected by video links to enable classes offered in one location to be available at the other.
- The Course on M.Tech. in Safety Engineering will be conducted under the Brand Name , Norms, Regulations and Guidelines of the NIT, Rourkela.
- The Study material to be given to each student will be developed jointly by the NIT and MDC on SHE.
- The duration of the course on M.Tech..in Safety Engineering will be 2(two) years with 4(four) semesters.
- The M.Tech. degree will be awarded by NIT, and will be at par with all other M.Tech. programmes in its standard and contents.
- It was agreed to introduce an exclusive course on **"M.Tech. in Safety Engineering (Executive Programme)"** during the same period. The intake strength of this programme may be up to **30(thirty)** to start with. Enrollment of students for this course may be filled up from among serving B.Tech. engineers in a Manufacturing / Process Industry or Technical / Government Institution. The classes of this category may be held in distance mode through proper video-conferencing arrangement.

  The tuition fee for this category is given in ***Annexure-I.***

ELIGIBILITY / CRITERIA FOR ADMISSION

The intake strength will be **30(thirty)** to start with for each academic session. However, depending upon requirement / demand, the strength may be enhanced as mutually agreed by NIT and MDC on SHE.

- Out of above, 10 may be filled up from among GATE qualified candidates and the remaining from Industry or fresher having a minimum mark of 60% or its equivalent at B.Tech. in Mechanical/ Electrical/ Electrical & Electronics/ Civil/ Metallurgy/ Chemical/ Ceramic/ Production/ Petroleum/ Fire/ Mining engineering degree level as applicable to NIT courses.

In case of any vacancy arising from the above listed categories , the same will be filled up either from GATE qualified engineers or Industry nominee, as the case may be.

- There will be no upper age limit for the candidates from industry.
- The tuition fee components for the GATE qualified and non-GATE candidates are given at ***Annexure-II & Annexure-I*** respectively.
- The fees of each category of students may be reviewed and revised as and when necessary by mutually agreed amounts.
- Central Government reservation policy will be applicable to GATE- qualified candidates only.

FACULTY

The faculty for the M.Tech. programme will be drawn normally from the serving regular, adjunct and visiting faculty of NIT, Rourkela.

The faculty will also be drawn from the panel of faculty engaged by MDC on SHE with first class B.Tech. in Mechanical/ Electrical/ Chemical/ Electrical & Electronics/ Metallurgical/ Civil/ Fire/ Mining Engineering and at least 10 (ten) years work experience covering safety technology/administration/ management in a manufacturing or process industry or similar Government / private establishment and M.B.B.S. with D.I.H. having work experience of at least 10(ten) years covering occupational health aspects in a Government Hospital/ Institution / Corporate / Private Hospitals or M.S./ M.D degree having work experience of at least 5 (five) years in a Government Hospital/ Institution/ Medical College / Corporate / Private Hospitals.

In addition, Courses on "**Industrial Safety Management / Engineering** " and/or publication in that area will be given preference. Academic or professional records of all proposed faculty will need concurrence of NIT Senate or Chairman Senate on its behalf.

HONORARIUM

The remuneration / honorarium for the visiting faculty will be worked out mutually by NIT and MDC on SHE on case by case.

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MANAGEMENMT

1ST Semester	:	The students will be enrolled and admitted at NIT, Rourkela. The day-to-day administration will be the responsibility of NIT, Rourkela.
2nd Semester	:	The students will be attend classes at MDC on SHE facility at Bhubaneswar. The day-to-day administration will be the responsibility of MDC on SHE, Bhubaneswar.
3rd & 4th Semester	:	A student will be ordinarily posted in a participating industry under the care of his local guide. However he/she will also be reporting to his principal guide at NIT or MDC on SHE and shall attend evaluation processes as per rules of NIT.

PROJECT GUIDE

Principal Guide:	Faculty of NIT, Rourkela and MDC on SHE, Bhubaneswar as well as qualified Professionals / Practicing Engineers with proven track records in the related field of research and approved by NIT, Rourkela / MDC on SHE, Bhubaneswar.
Guide from Industry:	The guide will be from the industry where the student will be posted for the Project Work.

HOSTEL

The students of M.Tech. in Safety Engineering course will avail the Hostel facility as applicable to other M.Tech. students of NIT at Rourkela.

However, during their tenure at MDC on SHE, Bhubaneswar, the students may avail the Hostel facility of MDC on SHE on usual charges as admissible for the purpose.

INDUSTRY VISIT

The students will be required to under take Industry visit as a part of the curriculum. The visit will be organized by NIT, Rourkela or MDC on SHE, Bhubaneswar as the case may be. On such occasions, the students will bear the lodging and boarding expenses during their Industrial Training/Project work.

During the Industrial visit, the students are required to have the Medical Insurance to meet any eventuality/emergency.

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During Industrial visit, all the students must have the provisions of PPE (Personal Protective Equipment) before entering the Factory premises.

CONDUCT OF EXAMINATION

The examination will be conducted by NIT, Rourkela with necessary support from MDC on SHE, Bhubaneswar.

FEE COLLECTION

All course fee will be collected from the students by the NIT, Rourkela in the form of on-line payment (or any other approved mode) process as per normal practice of NIT.

GUEST HOUSE FACILITY

NIT Guest House facility will be available to the officials of MDC on SHE at the rate as applicable to NIT Officials. Similarly, MDC Guest House/Hostel facility will be available to the Officials of NIT, Rourkela at the rate as applicable for the purpose.

REVENUE SHARING

For GATE stream candidates, the revenue sharing ratio on Tuition fee + Other fees(Sl.No. 3 of NIT Fee structure at Annexure-III) shall be, NIT : MDC on SHE = 2 : 1. For non-GATE seats the ratio shall be, MDC on SHE : NIT = 1 : 1.

The other applicable fees given at Annexure-III will be 100% available to NIT Rourkela during 1st, 3rd and 4th Semesters. Similarly during second semester students have to pay seat rent and other fees of MDC, which will be collected by NIT and passed on to MDC.

CURRICULUM

The details of agreed curriculum are given at ***Annexure-III.***

All academic regulations of NIT, excepting those covered under an explicit provision, shall be applicable.

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AWARD OF CERTIFICATE

The M.Tech. degree Certificate will be awarded by the NIT, Rourkela to the successful students during the Convocation programme of NIT, Rourkela.

APEX EXPERT COMMITTEE

Expert Committees consisting of representatives from NIT , Rourkela and MDC on SHE, Bhubaneswar and invitees from mutually agreed industries and / or Government establishments will be constituted to look after the specific issues relating to the course, as and when required.

An Apex Expert Committee would be constituted under the joint Chairmanship of President, MDC on SHE, Bhubaneswar and Director, NIT, Rourkela to decide on questions involving overall management of course.

DISCIPLINARY COMMITTEE

All students will be subject to disciplinary rules and procedures of NIT. However during outstation stay (at MDC or industry) they must in addition, abide by the local disciplinary rules and procedures. During the stay at MDC, the MDC's disciplinary committee will administer the process.

CURRICULUM COMMITTEE

The details of the agreed Curriculum Committee is given at ***Annexure-IV.***

MoU COMMITTEE

The details of MoU Committee is given at ***Annexure-V.***

DURATION OF MOU

The duration of MOU shall be initially for a period of 10(ten) years from the date of the agreement. The tenure will be reviewed one year before the expiry of the agreement period for further continuation.

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The continuance of the M.Tech. programme will be reviewed after 2 (two) years from the date of the MoU with respect to the response from the students and other stake holders.

Under no circumstances, while an existing batch has been admitted, could either party withdraw from their commitments given in this MoU so that the future of the admitted students are safe-guarded.

APPROVAL OF ACADEMIC PROGRAMME

All provisions under this MoU are subject to approval of the Senate (on all academic matters) and Board of Governors of NIT and by the Executive Committee of MDC on SHE.

GENERAL

The intent of this agreement is to provide a mechanism for working mutually progressive and supportive activities for both Institutions. This, however does not limit either party in their relations with other parties not named in this agreement.

Signed in English on **16th February, 2014** at Bhubaneswar.

(G.D.RATH)
Secretary
Multi Disciplinary Centre on
Safety,Health and Environment
Bhubaneswar,Odisha

Secretary
Multi Disciplinary Centre on
Safety, Health & Environment
Bhubaneswar

(S.K.UPADHYAYA)
Registrar
National Institute of Technology
Rourkela, Odisha

Registrar
National Institute of Technology
Rourkela - 769008 (Odisha)

In presence of

(Dr A.K.TRIPATHY)
President
Multi Disciplinary Centre on
Safety,Health and Environment
Bhubaneswar,Odisha

President
Multi Disciplinary Centre on
Safety, Health & Environment
Bhubaneswar

(PROF DR S.K.SARANGI)
Director
National Institute of Technology
Rourkela, Odisha

DIRECTOR
National Institute of Technology
Rourkela - 769008 (Odisha)

Annexure-I

Tuition fee for Non-GATE students :	Rs.1,00,000.00 per semester to start with, to be reviewed time to time.
	In addition, other fees as applicable to M.Tech students of NIT, Rourkela will also be charged *[Annexure-II]*.

Annexure-II

राष्ट्रीय प्रौद्योगिकी संस्थान, राउरकेला
National Institute of Technology, Rourkela

No.NITR/RG/ BOG-31/2012/ 385 Dt, 17.10.2012

Sub: Revised Student Fee Structure for B.Tech / M.Tech / MBA/ M.Sc / MA/ Ph.D / M.Tech.(Res.) Programmes.

The undersigned is directed to convey the approval of the BOG vide resolution No. BOG-31(2012)-05, dt 04.10.2012 that on the recommendation of the Finance Committee vide resolution No. F.C-20(2012)-07, dt.04.10.2012, BOG approved the Revised Student Fee Structure for B.Tech / M.Tech./ MBA/ M.Sc./ MA/ Ph.D./ M.Tech.(Res.) Programmes as given below:

Sl. No	Fee	Amount				
		B.Tech.	M.Tech	MBA	M.Sc. /MA	Ph.D./ M.Tech(R)
1.	Admission fee including hostel admission (one time fee)	Rs.1500	Rs.1500	Rs.1500	Rs.1500	Rs.1500
2.	Tuition fee (per annum)	Rs.35000	Rs.35000	Rs.100000	Rs.12000	Rs.5000
3.	Other fees (Exam., Library, Electrical etc.) (per annum)	Rs.6000	Rs.6000	Rs.6000	Rs.6000	Rs.6000
4.	Institute Development Contribution. (One time fee – to be directly deposited into corpus fund at the time of admission)	Rs.10000	Rs.5000	Rs.5000	Rs.5000	Nil
5.	Student Activity fee (per annum)	Rs.3000	Rs.3000	Rs.3000	Rs.3000	Rs.3000
6.	Medical fees (per annum)	Rs.2000	Rs.2000	Rs.2000	Rs.2000	Rs.2000
	Hostel seat rent (per annum):					
7(a)	Single seated	Rs.5000	Rs.5000	Rs.5000	Rs.5000	Rs.5000
	Double seated	Rs.4000	Rs.4000	Rs.4000	Rs.4000	Rs.4000
	Four seated	Rs.3000	Rs.3000	Rs.3000	Rs.3000	Rs.3000
	Family Accommodation	-	-	-	-	Rs. 6000 or 8000
7(b)	Permitted to stay outside the Hall	Lower fees appropriate to the hall to which attached				
7(c)	Hostel Establishment fee (per annum)	Rs.6000	Rs.5000	Rs.5000	Rs.5000	Rs.5000
8.	Souvenir fee in pre final semester	Rs.500	Rs.500	Rs.500	Rs.500	Nil
9.	Caution Money (one time fee, refundable)	Rs.5000	Rs.5000	Rs.5000	Rs.5000	Rs.5000
10.	Book Fee (Per Annum) for purchase of text books)	Rs.2000	Rs.2000	Rs.2000	Rs.2000	Nil

Miscellaneous fees:

Grade Cards and Certificates (Original)	NIL
Grade Cards and Certificates except degree certificate (Duplicate)	Rs. 500
Duplicate Certificate to correct errors	NIL
Degree Certificate (Duplicate) with Police FIR and Affidavit	Rs. 2000
Duplicate Identity Card	Rs. 500
Duplicate Health Card	Rs. 100
Delayed Payment (before Semester Registration)	Rs.500
Delayed Payment (beyond Registration date)	Rs. 2000
Official transcripts for students (one time payment)	Rs. 500

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ANNEXURE-III

DEPARTMENT OF CHEMICAL ENGINEERING

CH2: SAFETY ENGINEERING

FIRST SEMESTER

Sl. No	Sub. code	Subject	L-T- P	Credits
1	CH ***	Safety Management	3-0-0	3
2	CH ***	Safety in Fire Engineering and Explosion Control	3-0-0	3
3		Professional Elective – I	3-0-0	3
4		Professional Elective – II	3-0-0	3
5		Professional Elective – III	3-0-0	3
6	CH 789	Product Development Laboratory	0-0-3	2
7		Dispersion Modeling Laboratory	0-0-3	2
8		Electronics and Electrical Equipment Laboratory	0-0-3	2
9		Process Reliability Laboratory	0-0-3	2
10	CH 685	Seminar and Technical Writing – I	0-0-3	2
TOTAL				25

SECOND SEMESTER

Sl. No	Sub. code	Subject	L-T- P	Credits
1	CH ***	Occupational Health and Hygiene	3-0-0	3
2	CH ***	Legal Provisions on Safety, Health and Environment	3-0-0	3
3		Professional Elective – IV	3-0-0	3
4		Professional Elective – V	3-0-0	3
5		Professional Elective – VI	3-0-0	3
6		Safety Equipment Laboratory	0-0-3	2
7		Industrial Safety Laboratory	0-0-3	2
8		Industrial Hygiene & Occupational Health Laboratory	0-0-3	2
9	CH 690	Research Practice	0-0-0	2
10	CH 686	Seminar and Technical Writing – II	0-0-3	2
TOTAL				25

THIRD SEMESTER

Sl. No	Sub. code	Subject	L-T- P	Credits
1	CH 691	Summer Research / Industrial Project	0-0-0	4
2	CH 693	Research Project – I	0-0-0	20
3	CH 687	Seminar & Technical Writing – III	0-0-3	2
TOTAL				26

FOURTH SEMESTER

Sl. No	Sub. code	Subject	L-T- P	Credits
1	CH 692	Comprehensive Viva-Voce	0-0-0	4
2	CH 694	Research Project – II	0-0-0	20
3	CH 688	Seminar & Technical Writing – IV	0-0-3	2
TOTAL				26

8 Labs **Total Credits: 102**

LIST OF PROFESSIONAL ELECTIVES

Sl. No	Subj. Code	Subjects	L-T-P	Credits
1	CH XXX	Hazards and Risk Analysis	3-0-0	3
2	CH XXX	Electrical Safety	3-0-0	3
3	CH XXX	Safety in Plant Lay-out and Material Handling Safety	3-0-0	3
4	CH XXX	Safety in Mines	3-0-0	3
5	CH XXX	Safety in Metallurgical Industry	3-0-0	3
6	CH XXX	Occupational Health and Hygiene	3-0-0	3
7	CH XXX	Legal Provisions on Safety, Health and Environment	3-0-0	3
8	CH XXX	Industrial Safety Laboratory	3-0-0	3
9	CH XXX	Safety in Construction Industry	3-0-0	3
10	CH XXX	Safety in Engineering Industry	3-0-0	3
11	CH XXX	Safety in Chemical industry	3-0-0	3
12	CH XXX	Industrial Disaster Management	3-0-0	3
13	CH XXX	Environmental Impact Assessment	3-0-0	3
14	CH XXX	Hazardous Waste Management	3-0-0	3
15	CH XXX	Transport Safety	3-0-0	3

Note: Professional Electives from other Departments courses, summary of courses and subject codes will be decided by Curriculum Development Committee of Chemical Engineering Department.

DEPARTMENT OF CHEMICAL ENGINEERING
DETAILED SYLLABI OF COURSES

Sub. Code	Subject	L-T-P	Credits
CH XXX	Safety Management	3-0-0	3
CH XXX	Safety in Fire Engineering and Explosion Control	3-0-0	3
CH XXX	Occupational Health and Hygiene	3-0-0	3
CH XXX	Legal Provisions on Safety, Health and Environment	3-0-0	3
CH XXX	Hazards and Risk Analysis	3-0-0	3
CH XXX	Electrical Safety	3-0-0	3
CH XXX	Safety in Plant Lay-out and Material Handling Safety	3-0-0	3
CH XXX	Safety in Mines	3-0-0	3
CH XXX	Safety in Metallurgical Industry	3-0-0	3
CH XXX	Industrial Safety Laboratory	3-0-0	3
CH XXX	Safety in Construction Industry	3-0-0	3
CH XXX	Safety in Engineering Industry	3-0-0	3
CH XXX	Safety in Chemical industry	3-0-0	3
CH XXX	Industrial Disaster Management	3-0-0	3
CH XXX	Environmental Impact Assessment	3-0-0	3
CH XXX	Hazardous Waste Management	3-0-0	3
CH XXX	Transport Safety	3-0-0	3
CH XXX	Dispersion Modeling Laboratory	0-0-3	2
CH XXX	Electronics and Electrical Equipment Laboratory	0-0-3	2
CH XXX	Process Reliability Laboratory	0-0-3	2
CH XXX	Safety Equipment Laboratory	0-0-3	2
CH XXX	Industrial Safety Laboratory	0-0-3	2
CH XXX	Industrial Hygiene & Occupational Health Laboratory	0-0-3	2
CH 685	Seminar & Technical Writing – I	0-0-3	2
CH 686	Seminar & Technical Writing – II	0-0-3	2
CH 687	Seminar & Technical Writing – III	0-0-3	2
CH 688	Seminar & Technical Writing – IV	0-0-3	2
CH 690	Research Practice	0-0-0	2
CH 691	Summer Research/Industrial Project	0-0-6	4
CH 692	Comprehensive Viva Voce	0-0-0	4
CH 693	Research Project – I	0-0-0	20
CH 694	Research Project – II	0-0-0	20
CH 789	Product Development Laboratory	0-0-3	2

CH XXX PROBABILITY AND STATISTICS 3 credits [3-0-0]

PROBABILITY DISTRIBUTIONS

Probability basic concepts - Binomial, Poisson, Geometric, Normal, Uniform, Exponential, Gamma and Weibull – distributions – Mean, Variance, Moment generating functions.

ESTIMATION THEORY

Estimation of parameters – Principles of least squares – Maximum likelihood estimation – Method of moments – Interval estimation.

TESTING OF HYPOTHESIS

Sampling distribution, Large sample tests – Mean and Proportion, Small sample tests – t–test , F- test and Chi-Square test.- Goodness of fit – Independence of attributes.

DESIGN OF EXPERIMENTS

Design of Experiments: Basic Designs, Factorial Design, Taguchi Techniques, ANOVA

OPTIMIZATION METHODS

Classical optimization methods, unconstrained minimization .Univariate, conjugate direction, gradient and variable metric methods, constrained minimization, feasible direction and projections.

BASIC CONCEPT OF RELIABILITY

Failure rate analysis; Reliability of systems – series-parrel; Maintenance-Preventive and corrective; Maintainability Equation Availability; Quality and Reliability.

Essential Reading:

1. Freund John, E and Miller, Irvin, "Probability and Statistics for Engineering", 5th Edition, Prentice Hall, 1994.
2. Jay, L. Devore, "Probability and Statistics for Engineering and Sciences",

Supplementary Reading:

1. Gupta, S.C. and Kapoor, V.K, "Fundamentals of Mathematical Statistics",
2. Trivedi, K.S., "Probability and Statistics with Reliability, Queuing and Computer Science Applications", PHI
3. Kapur, J.N. and Saxena, H.C, "Mathematical Statistics", 18th Revised Edition,
4. Douglas C. Montgomery, "Design and analysis of experiments", John Wiley and sons, 7th edition, 2010.
5. Philip J.Ross, "Taguchi techniques for quality engineering", McGraw Hill book Company, 2nd edition, 1995

CH XXX HUMAN FACTOR ENGINEERING 3 credits [3-0-0]

ERGONOMICS AND ANATOMY

Introduction to ergonomics: The focus of ergonomics, ergonomics and its areas of application in the work system, a brief history of ergonomics, attempts to humanize work, modern ergonomics, future directions for ergonomics Anatomy, Posture and Body Mechanics: Some basic body mechanics, anatomy of the spine and pelvis related to posture, posture stability and posture adaptation, low back pain, risk factors for musculoskeletal disorders in the workplace, behavioral aspects of posture, effectiveness and cost effectiveness, research directions

HUMAN BEHAVIOR

Individual differences, Factors contributing to personality, Fitting the man to the job, Influence of difference on safety, Method of measuring characteristics, Accident Proneness. Motivation, Complexity of Motivation, Job satisfaction - Management theories of motivation, Job enrichment theory.Frustration and Conflicts - Reaction to frustration, Emotion and Frustration. Attitudes - Determination of attitudes, Changing attitudes - Learning, Principles of Learning, Forgetting, Motivational requirements.

ANTHROPOMETRY AND WORK DESIGN FOR STANDING AND SEATED WORKS

Designing for a population of users, percentile, sources of human variability, anthropometry and its uses in ergonomics, principals of applied anthropometry in ergonomics, application of anthropometry in design, design for everyone, anthropometry and personal space, effectiveness and cost effectiveness Fundamental aspects of standing and sitting, an ergonomics approach to work station design, design for standing workers, design for seated workers, work surface design, visual display units, guidelines for design of static work, effectiveness and cost effectiveness, research directions

MAN - MACHINE SYSTEM AND REPETITIVE WORKS AND MANUAL HANDLING TASK

Applications of human factors engineering, man as a sensor, man as information processor, man as controller – Man vs Machine.

Ergonomics interventions in Repetitive works, handle design, key board design- measures for preventing in work related musculoskeletal disorders (WMSDs), reduction and controlling, training Anatomy and biomechanics of manual handling, prevention of manual handling injuries in the work place, design of manual handling tasks, carrying, postural stability

HUMAN SKILL AND PERFORMANCE AND DISPLAY, CONTROLS AND VIRTUAL ENVIRONMENTS

A general information-processing model of the users, cognitive system, problem solving, effectiveness. Principles for the design of visual displays- auditory displays- design of controls combining displays and controls- virtual (synthetic) environments, research issues.

Essential Reading:

1. Introduction to Ergonomics, R.S. Bridger, Taylor and Francis, 2007
2. Michael O'Neill, Ergonomic Design for Organizational Effectiveness, Lewis Publishers, 1998

Supplementary Reading:

1. M.S.Sanders and McCormick, Human Factors in Engineering and Design, McGraw Hill Book Co., New York, 1993
2. Dan McLeod, Philip Jacobs and Nancy Larson, The Ergonomics Manual, (Saunders Group), Trade paperback, 1990.
3. McCornick, E.J., Human Factors in Engineering and Design, Tata McGraw-Hill, 1982.
4. Accident Prevention Manual for Industrial Operations, NSC, Chicago, 1982.

CH XXX HAZARDS AND RISK ANALYSIS 3 credits [3-0-0]

HAZARD, RISK ISSUES AND HAZARD ASSESSMENT

Introduction, hazard, hazard monitoring-risk issue, group or societal risk, individual risk, voluntary and involuntary risk, social benefits Vs technological risk, approaches for establishing risk acceptance levels, Risk estimation.

Hazard assessment, procedure, methodology; safety audit, checklist analysis, what-if analysis, safety review, preliminary hazard analysis (PHA), human error analysis, hazard operability studies (HAZOP), safety warning systems.

COMPUTER AIDED INSTRUMENTS

Applications of Advanced Equipments and Instruments, Thermo Calorimetry, Differential Scanning Calorimeter(DSC), Thermo Gravimetric Analyser (TGA), Accelerated Rate Calorimeter(ARC), Reactive Calorimeter(RC), Reaction System Screening Tool(RSST) - Principles of operations, Controlling parameters, Applications, advantages.

Explosive Testing, Deflagration Test, Detonation Test, Ignition Test, Minimum ignition energy Test, Sensitiveness Test, Impact Sensitiveness Test(BAM) and Friction Sensitiveness Test (BAM), Shock Sensitiveness Test, Card Gap Test.

RISK ANALYSIS QUANTIFICATION AND SOFTWARES

Fault Tree Analysis and Event Tree Analysis, Logic symbols, methodology, minimal cut set ranking - fire explosion and toxicity index(FETI), various indices – Hazard analysis(HAZAN)- Failure Mode and Effect Analysis(FMEA)- Basic concepts of Reliability- Software on Risk analysis, CISCON, FETI, HAMGARS modules on Heat radiation, Pool fire, Jet, Explosion. Reliability soft-wares on FMEA for mechanical and electrical systems.

CONSEQUENCES ANALYSIS

Logics of consequences analysis- Estimation- Hazard identification based on the properties of chemicals- Chemical inventory analysis- identification of hazardous processes- Estimation of source term, Gas or vapour release, liquid release, two phase release- Heat radiation effects, BLEVE, Pool fires and Jet fire- Gas/vapour dispersion- Explosion, UVCE and Flash fire, Explosion effects and confined explosion- Toxic effects- Plotting the damage distances on plot plant/layout.

CREDIBILITY OF RISK ASSESSMENT TECHNIQUES

Past accident analysis as information sources for Hazard analysis and consequences analysis of chemical accident, Mexico disaster, Flixborough, Bhopal, Seveso, Pasadena, Feyzin disaster(1966), Port Hudson disaster- convey report, hazard assessment of nonnuclear installation- Rijnmond report, risk analysis of size potentially Hazardous Industrial objects- Rasmussen masses report, Reactor safety study of Nuclear power plant .

Essential Reading:

1. Frank P. Less, Loss Prevention in Process Industries, (Vol.I, II and III) , Butterworth-Hein UK 1990
2. ILO- Major Hazard control- A practical Manual, ILO, Geneva, 1988.

Supplementary Reading:

1. Methodologies for Risk and Safety Assessment in Chemical Process Industries, Commonwealth Science Council, UK
2. Course Material Intensive Training Programme on Consequence Analysis, by Process Safety Centre, Indian Institute of Chemical Technology, Tarnaka and CLRI, Chennai.
3. Brown, D.B., System analysis and Design for safety, Prentice Hall, 1976.
4. Hazop and Hazom, Trevor A Klett, Institute of Chemical Engineering, 1983.
5. Quantitative Risk assessment in Chemical Industries, Institute of Chemical Industries, Centre for Chemical process safety, 1992
6. Guidelines for Hazard Evaluation Procedures, Centre for Chemical Process safety, AICHE 1992.

CH XXX ELECTRICAL SAFETY 3 credits [3-0-0]

INTRODUCTION AND STATUTORY REQUIREMENTS

Introduction – electrostatics, electro magnetism, stored energy, energy radiation and electromagnetic interference – Working principles of electrical equipment-Indian electricity act and rules-statutory requirements from electrical inspectorate-international standards on electrical safety – first aid-cardio pulmonary resuscitation (CPR) – national electrical safety code ANSI.

ELECTRICAL HAZARDS

Primary and secondary hazards-shocks, burns, scalds, falls-human safety in the use of electricity. Energy leakage-clearances and insulation-classes of insulation-voltage classifications- excess energy-current surges-Safety in handling of war equipments-over current and short circuit current-heating effects of current-electromagnetic forces-corona effect-static electricity –definition, sources, hazardous conditions, control, causes of fire and explosion- ionization, spark and arc-ignition energy- Lightning, hazards, lightning arrestor, installation – earthing, specifications, earth resistance, earth bit maintenance.

PROTECTION SYSTEMS

Fuse, circuit breakers and overload relays – protection against over voltage and under voltage – safe limits of amperage – voltage –safe distance from lines-capacity and protection of conductor-joints-and connections, overload and short circuit protection-no load protection-earth fault protection - earthing devices.

Flame Retardant Low Smoke (FRLS) insulation-insulation and continuity test-system grounding-equipment grounding- earth leakage circuit breaker (ELCB)-cable wires maintenance of ground-ground fault circuit interrupter-use of low voltage-electrical guards-personal protective equipment – safety in handling hand held electrical appliances tools and medical equipments.

SELECTION, INSTALLATION, OPERATION AND MAINTENANCE

Role of environment in selection-safety aspects in application - protection and interlock self diagnostic features and fail safe concepts-lock out and work permit system-discharge rod -safety in the use of portable tools-cabling and cable joints- preventive maintenance.

HAZARDOUS ZONES

Classification of hazardous zones-intrinsically safe and explosion proof electrical apparatus-increase safe equipment-their selection for different zones-temperature classification-grouping of gases-use of barriers and isolators-equipment certifying agencies.

Essential Reading:

1. Fordham Cooper, W., Electrical Safety Engineering, Butterworth and Company, London, 1986.

Supplementary Reading:

1. Accident prevention manual for industrial operations, National Safety Council, N.S.C., Chicago, 1982.
2. Indian Electricity Act and Rules,
3. Power Engineers – Handbook of CEGB, Britan.
4. Martin Glov., Electrostatic Hazards in powder handling, Research Studies Pvt. Ltd., England, 1988.

CH XXX SAFETY IN PLANT LAYOUT AND MATERIAL 3 credits [3-0-0]

PLANT LOCATION

Selection of plant locations, territorial parameters, considerations of land, water, electricity, location for waste treatment and disposal, further expansions Safe location of chemical storages, LPG, LNG, CNG, acetylene, ammonia, chlorine, explosives and propellants

PLANT LAYOUT

Safe layout, equipment layout, safety system, fire hydrant locations, fire service rooms, facilities for safe effluent disposal and treatment tanks, site considerations, approach roads, plant railway lines, security towers.

Safe layout for process industries, engineering industry, construction sites, pharmaceuticals, pesticides, fertilizers, refineries, food processing, nuclear power stations, thermal power stations, manufacturing.

WORKING CONDITIONS

Principles of good ventilation, purpose, physiological and comfort level types, local and exhaust ventilation, hood and duct design, air conditioning, ventilation standards, application.
Purpose of lighting, types, advantages of good illumination, glare and its effect, lighting requirements for various work, standards- Housekeeping, principles of 5S.

MANUAL MATERIAL HANDLING

Preventing common injuries, lifting by hand, team lifting and carrying, handling specific shape machines and other heavy objects – accessories for manual handling, hand tools, jacks, hand trucks, dollies and wheel barrows – storage of specific materials – problems with hazardous materials, liquids, solids – storage and handling of cryogenic liquids - shipping and receiving, stock picking, dock boards, machine and tools, steel strapping and sacking, glass and nails, pitch and glue, boxes and cartons and car loading – personal protection – ergonomic and safety considerations Fiber rope, types, strength and working load inspection, rope in use, rope in storage - wire rope, construction, design factors, deterioration causes, sheaves and drums, lubrication, overloading, rope fitting, inspection and replacement – slings, types, method of attachment, rated capacities, alloy chain slings, hooks and attachment, inspection - ergonomic and safety considerations

MECHANICAL MATERIAL HANDLING

Hoisting apparatus, types - cranes, types, design and construction, guards and limit devices, signals, operating rules, maintenance safety rules, inspection and inspection checklist – conveyors, precautions, types, applications - ergonomic and safety considerations Powered industrial trucks, requirements, operating principles, operators selection and training and performance test, inspection and maintenance, electric trucks, gasoline operated trucks, LPG trucks – power elevators, types of drives, hoist way and machine room emergency procedure, requirements for the handicapped, types- Escalator, safety devices and brakes, moving walks – man lifts, construction, brakes, inspection - ergonomic and safety considerations

Essential Reading:

1. Apple .M. James, Plant layout and material handling, 3rd edition, John Wiley and sons, 1991
2. Fred E. Meyers and Matthew P. Stephens, "Manufacturing Facilities Design and Material Handling", Prentice Hal, 3rd edition, 2004.

Supplementary Reading:

1. Encyclopedia of occupational safety and health, ILO Publication, 1985
2. Accident prevention manual for industrial operations, N.S.C., Chicago, 1982.
3. Alexandrov. M.P., Material handling equipment, Mir Publishers, Moscow, 1981
4. Spivakosky, Conveyors and related Equipment, Vol.I and II Peace Pub. Moscow, 1982.
5. Rudenko, N., Material handling Equipments, Mir Publishers, 1981.
6. Reymond, A.Kulwice, Material Handling Hand Book - II, John Wiley and Sons, New York, 1985.
7. Safety and good housekeeping, N.P.C. New Delhi, 1985.
8. Industrial ventilation (A manual for recommended practice), American conference of Governmental Industrial Hygiene, USA, 1984.

CH XXX ENVIRONMENTAL SAFETY **3 credits [3-0-0]**

AIR POLLUTION

Classification and properties of air pollutants – Pollution sources – Effects of air pollutants on human beings, Animals, Plants and Materials - automobile pollution hazards of air pollution- concept of clean coal combustion technology - ultra violet radiation, infrared radiation, radiation from sun-hazards due to depletion of ozone - deforestation-ozone holes-automobile exhausts-chemical factory stack emissions-CFC.

Dispersion of air pollutants- Plume behavior- control of gaseous pollutants, Sulphurdioxide, nitrogen oxides, carbon monoxides & hydrocarbons.

WATER POLLUTION

Classification of water pollutants-health hazards-sampling and analysis of water-water treatment - different industrial effluents and their treatment and disposal –advanced wastewater treatment - effluent quality standards and laws- chemical industries, tannery, textile effluents-common treatment.

SOLID AND HAZARDOUS WASTE MANAGEMENT

Hazardous waste management in India-waste identification, characterization and classification-technological options for collection, treatment and disposal of hazardous waste-selection charts for the treatment of different hazardous wastes-methods of collection and disposal of solid wastes- processing and energy recovery – waste minimization, health hazards-toxic and radioactive wastes-incineration and vitrification - hazards due to bio-process-dilution-standards and restrictions – recycling and reuse.

ENVIRONMENTAL MEASUREMENT AND CONTROL

Sampling and analysis – dust monitor – gas analyzer, particle size analyzer – lux meter-PH meter – gas chromatograph – atomic absorption spectrometer. Gravitational settling chambers-cyclone separators-scrubbers-electrostatic precipitator - bag filter – maintenance - control of gaseous emission by adsorption, absorption and combustion methods- Pollution Control Board-laws.

POLLUTION CONTROL IN PROCESS INDUSTRIES

Pollution control in process industries like cement, paper, petroleum-petroleum products textile-tanneries- thermal power plants – dying and pigment industries - eco-friendly energy.

Essential Reading:

1. Rao, CS, Environmental pollution engineering, Wiley Eastern Limited, New Delhi, 1992.
2. H. S. Peavy, D. R. Rowe, G. Tchobanoglous Environmental Engineering - McGraw- Hill Book Company, New York, 1987.

Supplementary Reading:

1. H.Ludwig, W.Evans, Manual of Environmental Technology in Developing Countries, International Book Company, Absecon Highlands, N.J., 1991.
2. Arcadio, P. Sincero and G. A. Sincero, Environmental Engineering – A Design Approach, Prentice Hall of India Pvt Ltd, New Delhi, 2002.
3. G. Masters Introduction to Environmental Engineering and Science, Prentice Hall of India Pvt Ltd, New Delhi, 2003.
4. S.P.Mahajan, Pollution control in process industries, Tata McGraw Hill Publishing Company, New Delhi, 1993
5. Varma and Braner, Air pollution equipment, Springer Publishers, Second Edition

CONCEPTS

Evolution of modern safety concept- Safety policy - Safety Organization - line and staff functions for safety- Safety Committee- budgeting for safety. Techniques: Incident Recall Technique (IRT), disaster control, Job Safety Analysis (JSA), safety survey, safety inspection, safety sampling, Safety Audit.

ACCIDENT INVESTIGATION AND REPORTING

Concept of an accident, reportable and non reportable accidents, unsafe act and condition – principles of accident prevention, Supervisory role- Role of safety committee - Accident causation models - Cost of accident. Overall accident investigation process - Response to accidents, India reporting requirement, Planning document, Planning matrix, Investigators Kit, functions of investigator, four types of evidences, Records of accidents, accident reports- Class exercise with case study.

SAFETY EDUCATION, TRAINING AND PERFORMANCE MONITORING

Importance of training-identification of training needs-training methods – programme, seminars, conferences, competitions – method of promoting safe practice - motivation – communication - role of government agencies and private consulting agencies in safety training – creating awareness, awards, celebrations, safety posters, safety displays, safety pledge, safety incentive scheme, safety campaign – Domestic Safety and Training. permanent total disabilities, permanent partial disabilities, temporary total disabilities - Calculation of accident indices, frequency rate, severity rate, frequency severity incidence, incident rate, accident rate, safety "t" score, safety activity rate – problems.

PERSONAL PROTECTIVE EQUIPMENT

Need for personal protection equipment - Non-respiratory personal protective devices: Head protection, Ear protection. Face and Eye protection. Hand protection, Foot protection, body protection. Respiratory personal protective devices : Classification of hazards. Elements of a personal Protective programme.Classification of respiratory personal protective devices.Selection of respiratory personal protective devices. Instructions and training in the use, maintenance and care of self containing breathing apparatus. Testing Procedures and Standards, Applicable standards for PPEs.

BEHAVIOUR BASED SAFETY

Human behavior : Individual differences, behavior as function of self and situation, perception of danger and acceptance of risk, knowledge, and responsibility vis-avis safety performance, theories of motivation and their application to safety, role of, supervisors and safety departments in motivation. Conflict &Frustration :

Identification of situations leading to conflict and frustration and techniques of management. BBS Program

Essential Reading:

1. Accident Prevention Manual for Industrial Operations, N.S.C. Chicago, 1982
2. Heinrich H.W., Industrial Accident Prevention, McGraw-Hill Company, New York, 1980.

Supplementary Reading:

3. John V.Grimaldi and Rollin H.Simonds, Safety Management,
4. William Handley, "Industrial Safety Hand Book", McGraw Hill, 2nd Edition, 1969.
5. Krishnan N.V., Safety Management in Industry,
6. John Ridley, Safety at Work, Butterworth & Co., London, 1983.
7. Blake R.B., Industrial Safety, Prentice Hall, Inc., New Jersey, 1973
8. Dan Petersen, "Techniques of Safety Management", McGraw-Hill Company, Tokyo, 1981.
9. "Safety and Good House Keeping", N.P.C., New Delhi, 1985.

CH XXX	SAFETY IN FIRE ENGINEERING AND EXPLOSION CONTROL	3 credits [3-0-0]

FIRE CHEMISTRY

Fire properties of solid, liquid and gases - fire spread - toxicity of products of combustion - theory of combustion and explosion – vapour clouds – flash fire – jet fires – pool fires – unconfined vapour cloud explosion, shock waves - auto-ignition – boiling liquid expanding vapour explosion – case studies – Flixborough, Mexico disaster, Pasedena Texas, Piper Alpha, Peterborough and Bombay Victoria dock ship explosions.

FIRE PREVENTION AND PROTECTION

Sources of ignition – fire triangle – principles of fire extinguishing – active and passive fire protection systems – various classes of fires – A, B, C, D, E – types of fire extinguishers – fire stoppers – hydrant pipes – hoses – monitors – fire watchers – lay out of stand pipes – fire station-fire alarms and sirens – maintenance of fire trucks – foam generators – escape from fire rescue operations – fire drills – notice-first aid for burns.

INDUSTRIAL FIRE PROTECTION SYSTEMS

Sprinkler-hydrants-stand pipes – special fire suppression systems like deluge and emulsifier, selection criteria of the above installations, reliability, maintenance, evaluation and standards – alarm and detection systems. Other suppression systems – CO system, foam system, dry chemical powder (DCP) system, halon system – need for halon replacement – smoke venting. Portable extinguishers – flammable liquids – tank farms – indices of inflammability-fire fighting systems.

BUILDING FIRE SAFETY

Objectives of fire safe building design, Fire load, fire resistant material and fire testing –

structural fire protection – structural integrity – concept of egress design – exists – width calculations - fire certificates – fire safety requirements for high rise buildings – snookers.

AIR PORT FIRE HAZARDS

Airport Fire Stations, Airport Medical Emergency and Response preparedness, First Aid ,Safety Inspection, House keeping, Fire Fighting Equipments: Hydrant system, Sprinkler system, Fire Drills, Fire Prevention and Protection, Fire Investigation and Analysis.

EXPLOSION PROTECTION SYSTEMS

Principles of explosion-detonation and blast waves-explosion parameters – Explosion Protection, Containment, Flame Arrestors, isolation, suppression, venting, explosion relief of large enclosure-explosion venting-inert gases, plant for generation of inert gasrupture disc in process vessels and lines explosion, suppression system based on carbon dioxide (CO2) and halons-hazards in LPG, ammonia (NH3), sulphur dioxide (SO), chlorine (CL) etc.

Essential Reading:

1. Derek, James, Fire Prevention Hand Book, Butterworths and Company, London, 1986.

Supplementary Reading:

1. Gupta, R.S., Hand Book of Fire Technology, Orient Longman, Bombay 1977.
2. Accident Prevention manual for industrial operations, N.S.C., Chicago, 1982.
3. DinkoTuhtar, Fire and explosion protection – A System Approach, Ellis Horwood Ltd , Publisher, 1989

4. William E. Clark, "Firefighting Principles & Practices", Fire Engineering Books and Videos, 2nd edition 1991.
5. Dennis P. Nolan, "Handbook of Fire & Explosion Protection Engineering Principles for Oil, Gas, Chemical, & Related Facilities ", William Andrew Publishers, 1997
6. Fire fighters hazardous materials reference book, Fire Prevention in Factories, anNostrand Rein Hold, New York, 1991.

CH XXX OCCUPATIONAL HEALTH AND HYGIENE 3 credits [3-0-0]

PHYSICAL HAZARDS

Anatomy and Physiology of EAR(Hearing)Noise, compensation aspects, noise exposure regulation, properties of sound, occupational damage, risk factors, sound measuring instruments, octave band analyzer, noise networks, noise surveys, noise control program, industrial audiometry, hearing conservation programs- vibration: types, effects, instruments, surveying procedure, permissible exposure limit. Ionizing radiation, types, effects, monitoring instruments, control programs, OSHA standard- non-ionizing radiations, effects, types, radar hazards, microwaves and radio-waves, lasers, TLV- cold environments, hypothermia, wind chill index, control measures- hot environments, thermal comfort, heat stress indices, acclimatization, estimation and control. Illumination- types, standards, glare effect.

CHEMICAL HAZARDS

Recognition of chemical hazards-dust, fumes, mist, vapour, fog, gases, types, concentration, Route of entry to human system, Exposure – vs- dose, TLV - Methods of Evaluation, process or operation description, Field Survey, Sampling methodology, Industrial Hygiene survey, Comparison with OSHAS Standard. Air Sampling instruments, Types, Measurement Procedures, Instruments Procedures, Gas and Vapour monitors, dust sample collection devices, personal sampling, Methods of Control - Engineering Control, Design maintenance considerations, Design specifications - General Control Methods – training and education, P.P.E.

BIOLOGICAL AND ERGONOMICAL HAZARDS

Classification of Bio-hazardous agents –bacterial agents, rickettsial and chlamydial agents, viral agents, fungal, parasitic agents, infectious diseases – Bio-hazard control program, employee health program-laboratory safety program-animal care and handling-biological safety cabinets - building design.

Work Related Musculoskeletal Disorders–carpal tunnel syndrome CTS- Tendon pain disorders of the neck- back injuries.

MECHANICAL HAZARDS

Type and causes of injuries and accident, burn, loss of earning capacity(%), compensation, specific protection and rehabilitation.

OCCUPATIONAL STRESS

Organisational set-up, work environment, work culture, age-mix of working group, inter-personal relationship, balancing act (home:work), effects, distress mechanism

OCCUPATIONAL HEALTH AND TOXICOLOGY

Concept and spectrum of health - functional units and activities of occupational health services, pre-employment and post-employment medical examinations – occupational related diseases, levels of prevention of diseases, notifiable occupational diseases such as silicosis, asbestosis, pneumoconiosis, siderosis, anthracosis, aluminosis and anthrax, lead-nickel, chromium and manganese toxicity, gas poisoning (such as CO, ammonia, coal and dust etc) their effects and prevention – cardio pulmonary resuscitation, audiometric tests, eye tests, vital function tests. Industrial toxicology, local, systemic and chronic effects, temporary and cumulative effects, carcinogens entry into human systems

OCCUPATIONAL PHYSIOLOGY

Man as a system component – allocation of functions – efficiency – occupational work capacity – aerobic and anaerobic work – evaluation of physiological requirements of jobs – parameters of measurements – categorization of job heaviness – work organization – stress – strain – fatigue – rest pauses – shift work – personal hygiene.

FIRST AID

Concept, structure and function of human body, life savingactions:care of unconscious victim, C.P.R., control of blood loss, shock management,injuries, wounds and bleeding, bone & joint injuries,burn&scald,bites& stings, poisoning,medicalemergencies:heart attack, stroke,epilepsy, diabetic coma,allergy ,dressing & bandages, first aid in mines & quarries.

Essential Reading:

1. Handbook of Occupational Health and Safety, NSC Chicago, 1982
2. Hand Book on First Aid, Multi Disciplinary Centre on Safety, Health & Environment, Bhubaneswar, Odisha, 2012.

Supplementary Reading:

1. Encyclopedia of Occupational Health and Safety, Vol. I & II, International LabourOrganisation, Geneva, 1998.
2. McCornick, E.J. and Sanders, M.S., Human Factors in Engineering and Design, Tata McGraw-Hill, 1982.
3. WHO (1960), WHO Chronicle, 7, 279.
4. Rao, M.N. and Lundgren N.P.V., A Review of Occupational Health Research in India, ICMR, New Delhi.
5. ILO (1967), Accident Prevention, A Worker's Education Manual, Geneva.

CH XXX LEGAL PROVISIONS ON SAFETY, HEALTH AND ENVIRONMENT — **3 credits [3-0-0]**

FACTORIES ACT – 1948

Statutory authorities – inspecting staff, health, safety, provisions relating to hazardous processes, welfare, working hours, employment of young persons – special provisions – penalties and procedures-Odisha Factories Rules, 1950 under Safety and Health chapters of Factories Act -1948

ENVIRONMENT PROTECTION ACT – 1986

General powers of the central government, prevention, control and abatement of environmental pollution-Biomedical waste (Management and Handling) Rules, 1989-The Noise Pollution (Regulation and Control) Rules, 2000-The Batteries (Management and Handling Rules) 2001- No Objection Certificate from statutory authorities like Pollution Control Board.

Air Act 1981 and Water Act 1974: Central and state boards for the prevention and control of air pollution-powers and functions of boards – prevention and control of air pollution and water pollution – fund – accounts and audit, penalties and procedures.

MANUFACTURE, STORAGE AND IMPORT OF HAZARDOUS CHEMICAL RULES, 1989

Definitions – duties of authorities – responsibilities of occupier – notification of major accidents – information to be furnished – preparation of offsite and onsite plans – list of hazardous and toxic chemicals – safety reports – safety data sheets.

OTHER ACTS AND RULES

Indian Boiler Act, 1923 and Rules made there under, Static and Mobile Pressure Vessel Rules (SMPV), Motor Vehicle Act and Rules, Mines Act, 1952 and Mines Rules, 1955,Recommendations of 10th Safety Conference by DGMS, Workman Compensation Act and Rules – Electricity Act and Rules – Hazardous Wastes (Management and Handling) Rules, 1989, with amendments in 2000-Hazardous Materials Transportation protection Rules, the Building and other Construction Workers Act, 1996., Petroleum Rules, Gas Cylinder Rules- Indian Explosives Act, 1983- Pesticides Act, Insecticide Act and Rules, Water Act-1974, Air Act-1977, Calcium Carbide Rules, Radiation Protection Rules, ILO Conventions and Recommendations.

INTERNATIONAL ACTS AND STANDARDS

Occupational Safety and Health Act of USA (The Williames - Steiger Act of 1970) – Health and Safety Work Act (HASAWA 1974, UK) – OSHAS 18000 – ISO 14000 – American National Standards Institute (ANSI).

Essential Reading:

1. The Factories Act 1948
2. The Environment Act (Protection) 1986,
3. Water (Prevention and control of pollution) act 1974,
4. Air (Prevention and control of pollution) act 1981,
5. Indian Boilers act 1923,
6. The Mines Act 1952,
7. The Manufacture, Storage and Import of Hazardous Chemical Rules 1989,
8. Explosive Act, 1884 and Explosive Rules, 1883 (India), (2002),
9. ISO 9000 to OHSAS 18001,
10. ILO Conventions and Recommendations.

CH XXX INDUSTRIAL SAFETY LABORATORY 2 credits [0-0-3]

NOISE LEVEL AND VIBRATION MEASUREMENT AND ANALYSIS

Measurement of noise level for various sources – Impact, continuous and intermittent. Frequency and spectrum analysis of noise: Instrument – precision type of Noise level meter with frequency and spectrum analyzer.

Measurement of whole body vibration for various acceleration: Instrument – vibration simulator and vibration analyzer

FRICTION AND IMPACT SENSITIVITY TEST

Measurement of friction sensitivity for unstable materials: Instrument – BAM friction tester ; Measurement of impact sensitivity for unstable materials: Instrument – BAM fall hammer

THERMAL REACTIVITY TEST

Measurement of thermal reactivity for unstable materials: Instrument – DSC/TGA

EXHAUST GAS MEASUREMENT AND ANALYSIS

Measurement of Exhaust gas measurement of IC engines: Instrument – Gas analyzer

BREATHING ZONE CONCENTRATION

Measurement of breathing zone concentration of dust and fumes: Instrument – personal air sampler

AMBIENT AIR MONITORING

Measurement of respirable and non-respirable dust in the ambient air: Instrument – High volume sampler

CONSEQUENCE ANALYSIS

Soft computing skills on developing effects of fire & explosion and dispersion: Software – PHAST 1 and ALOHA

ELECTRICAL SAFETY

- Experiment on the basic circuit explaining the effects of grounding
- Test the strength of insulators like oil, thermal insulation
- Experiment on fuses/relays/MCBs to understand the operational differences
- Test on the discharge rod to understand the operation of it
- Circuit connection explaining the use of isolators
- Static charge testing & illumination testing: On plastic, rubber, ferrous and nonferrous materials – by lux meter – photometer

INSTRUMENTATION AND CONTROL

- Temperature measurement using Thermocouple and RTD
- Level measurement using capacitance probe
- Pressure measurement, data acquisition and analysis using differential pressure transmitter
- Speed Measurement using Stroboscope and Doppler meter
- Progrmming in PLC to detect hazards and rise alarms
- Study of timer, counter and logic operations in PLC
- Study of smart sensors
- Piezo electric and ultrasonic transducers

STUDY OF FIRST AID, PERSONAL PROTECTIVE EQUIPMENT AND FIRE EXTINGUISHERS

Respiratory and non-respiratory – demonstration – self contained breathing apparatus - Safety helmet, belt, hand gloves, goggles, safety shoe, gum boots, ankle shoes, face shield, nose mask, ear plug, ear muff, apron and leg guard.

Selection and demonstration of first-aid - fire extinguishers: soda acid, foam, carbon dioxide (CO_2), dry chemical powder, halon.

CH XXX SAFETY IN MINES 3 credits [3-0-0]

OPENCAST MINES

Causes and prevention of accident from: Heavy machinery and earth moving equipments, belt and bucket conveyors, drilling, hand tools-pneumatic systems, pumping, water, dust, electrical systems, fire prevention. Garage safety – accident reporting system-working condition-safe transportation – handling of explosives.

UNDERGROUND MINES

Fall of roof and sides-effect of gases-fire and explosions-water flooding, inundation -warning sensors gas detectors-occupational hazards-working conditions-winding and transportation.

TUNNELLING

Hazards from: ground collapse, inundation and collapse of tunnel face, falls from platforms and danger from falling bodies. Atmospheric pollution (gases and dusts) – trapping –transport-noise-electrical hazards-noise and vibration from: pneumatic tools and other machines – ventilation and lighting – personal protective equipment.

RISK ASSESSMENT

Basic concepts of risk-reliability and hazard potential-elements of risk assessment – statistical methods – control charts-appraisal of advanced techniques-fault tree analysis failure mode and effect analysis – quantitative structure-activity relationship analysis fuzzy model for risk assessment.

ACCIDENT ANALYSIS AND MANAGEMENT

Accidents classification and analysis-fatal, serious, minor and reportable accidents – safety audits-recent development of safety engineering approaches for mines-frequency rates-accident occurrence-investigation-measures for improving safety in mines-cost of accident, disaster management and emergency preparedness.

Essential Reading:

1. Kejiriwal, B.K. Safety in Mines, GyanPrakashan, Dhanbad, 2001.
2. DGMS Circulars-Ministry of Labour, Government of India press, OR Lovely Prakashan-DHANBAD, 2002.

Supplementary Reading:

1. Michael Karmis ed., Mine Health and Safety Management, SME Transactions , Littleton, Co.2001.

CH XXX SAFETY IN METALLURGICAL INDUSTRY 3 credits [3-0-0]

SAFETY & HEALTH ASPECTS IN NON-FERROUS INDUSTRY

Metals coming under non-ferrous industry,Smelting& Refining process. Overview of Pyro-metallurgy & Hydro-metallurgy.

Aluminum extraction from Ore. Process review.

Hazards specific to non-ferrous industry

Hazards & Health effects,Physicalhazards,Chemicalhazards,Safety hazards

Furnaces used in non-ferrous industry

General description,Lighting of Furnaces,Prevention of fire &explosion,Maintaining tap holes,Preventing slip & falls in furnace area

Handling Molten Metal & Slag

Hazard description,Riskassessment,Controlstrategies,Work practices

Process & Waste gases

Common causes of Injury:

Unguarded machinery, Contact with hot metal, Fire & Explosion, Extreme temperature, Radiation (Ionizing & non ionizing radiation),Inhalable agents (gas, dust, vapour, fume),Moving machinery and onsite transport, Chemical contact, Exposure to controlled & uncontrolled energy source, Electric burn & electrocution, Fall from height, Falling objects

FERROUS INDUSTRY

IRON & STEEL INDUSTRY

Process of Iron making, Process of Steel making, Rolling Mills operation

Major equipments involved

Coke Oven Battery operation, Hazards involved :Physical, Chemical, Mechanical, Inhalable agents (gas, dust, vapour, fume),Risk Assessment and Control strategies

Blast Furnace operation
hazards involved: Physical, Chemical, Mechanical, Inhalable agents, Risk Assessment & Control strategies

Steel Making process
BOF process, EAF process, Hazards involved: Physical, Electrical, Inhaling agents, High temperature, Explosion

Rolling Mills operation
Process, Hazards, Noise, Vibration, Harmful gas &vapour, Ionizing radiation

Crane operation
Types of cranes and their respective use, Hazards of crane operation, Risk assessment and their control

Transport Safety
Railway movement, Road movement, Material handling equipments at shop-floor i..e. Fork-lift etc

Essential Reading:

Supplementary Reading:

CH XXX SAFETY IN CONSTRUCTION INDUSTRY 3 credits [3-0-0]

ACCIDENTS CAUSES AND MANAGEMENT SYSTEMS
Problems impeding safety in construction industry- causes of fatal accidents, types and causes of accidents related to various construction activities, human factors associated with these accident – construction regulations, contractual clauses – Pre contract activities, preconstruction meeting - design aids for safe construction – permits to work – quality assurance in construction - compensation – Recording of accidents and safety measures – Education and training

HAZARDS OF CONSTRUCTION AND PREVENTION
Excavations, basement and wide excavation, trenches, shafts – scaffolding , types, causes of accidents, scaffold inspection checklist – false work – erection of structural frame work, dismantling – tunneling – blasting, pre blast and post blast inspection – confined spaces – working on contaminated sites – work over water - road works – power plant constructions – construction of high rise buildings.

WORKING AT HEIGHTS
Fall protection in construction OSHA 3146 – OSHA requirement for working at heights, Safe access and egress – safe use of ladders- Scaffoldings , requirement for safe work platforms, stairways, gangways and ramps – fall prevention and fall protection , safety belts, safety nets, fall arrestors, controlled access zones, safety monitoring systems – working on fragile roofs, work permit systems, height pass – accident case studies.

CONSTRUCTION MACHINERY
Selection, operation, inspection and testing of hoisting cranes, mobile cranes, tower cranes, crane inspection checklist - builder's hoist, winches, chain pulley blocks – use of conveyors - concrete mixers, concrete vibrators – safety in earth moving equipment, excavators, dozers, loaders, dumpers, motor grader, concrete pumps, welding machines, use of portable electrical tools, drills, grinding tools, manual handling scaffolding, hoisting cranes – use of conveyors and mobile cranes – manual handling.

SAFETY IN DEMOLITION WORK

Safety in demolition work, manual, mechanical, using explosive - keys to safe demolition, pre survey inspection, method statement, site supervision, safe clearance zone, health hazards from demolition - Indian standard - trusses, girders and beams – first aid – fire hazards and preventing methods – interesting experiences at the construction site against the fire accidents.

Essential Reading:

1. Handbook of OSHA Construction safety and health, Charles D. Reese and James V. Edison
2. Accident Prevention Manual for Industrial Operations, NSC, Chicago, 1982
3. Fulman, J.B., Construction Safety, Security, and Loss Prevention, John Wiley and Sons, 1979.

SupplementaryReading:

1. Hudson, R., Construction hazard and Safety Hand book, Butterworth's Publication, 1985.
2. JnatheaD.Sime, Safety in the Build Environment, London, 1988.
3. V.J.Davies and K.Thomasin, Construction Safety Hand Book, Thomas Telford Ltd., London, 1990.

CH XXX SAFETY IN ENGINEERING INDUSTRY 3 credits [3-0-0]

SAFETY IN METAL WORKING MACHINERY AND WOOD WORKING MACHINES

General safety rules, principles, maintenance, Inspections of turning machines, boring machines, milling machine, planning machine and grinding machines, CNC machines, Wood working machinery, types, safety principles, electrical guards, work area, material handling, inspection, standards and codes- saws, types, hazards.

PRINCIPLES OF MACHINE GUARDING

Guarding during maintenance, Zero Mechanical State (ZMS), Definition, Policy for ZMS – guarding of hazards - point of operation protective devices, machine guarding, types, fixed guard, interlock guard, automatic guard, trip guard, electron eye, positional control guard, fixed guard fencing- guard construction- guard opening.

Selection and suitability: lathe-drilling-boring-milling-grinding-shaping-sawing-shearingpresses- forge hammer-flywheels-shafts-couplings-gears-sprockets wheels and chains pulleys and belts-authorized entry to hazardous installations-benefits of good guarding systems.

SAFETY IN WELDING AND GAS CUTTING

Gas welding and oxygen cutting, resistances welding, arc welding and cutting, common hazards, personal protective equipment, training, safety precautions in brazing, soldering and metalizing – explosive welding, selection, care and maintenance of the associated equipment and instruments – safety in generation, distribution and handling of industrial gases-colour coding – flashback arrestor – leak detection-pipe line safety-storage and handling of gas cylinders.

SAFETY IN COLD FORMING AND HOT WORKING OF METALS

Cold working, power presses, point of operation safe guarding, auxiliary mechanisms, feeding and cutting mechanism, hand or foot-operated presses, power press electric controls, power press set up and die removal, inspection and maintenance-metal sheers press brakes.

Hot working safety in forging, hot rolling mill operation, safe guards in hot rolling mills – hot bending of pipes, hazards and control measures.

Safety in gas furnace operation, cupola, crucibles, ovens, foundry health hazards, work environment, material handling in foundries, foundry production cleaning and finishing foundry processes.

SAFETY IN FINISHING, INSPECTION AND TESTING

Heat treatment operations, electro plating, paint shops, sand and shot blasting, safety in inspection and testing, dynamic balancing, hydro testing, valves, boiler drums and headers, pressure vessels, air leak test, steam testing, safety in radiography, personal monitoring devices, radiation hazards, engineering and administrative controls, Indian Boilers Regulation.

Essential Reading:

1. Accident Prevention Manual, National Safety Council (NSC), Chicago, 1982.
2. Occupational safety Manual, BHEL, Trichy, 1988.
3. John V. Grimaldi and Rollin H. Simonds., Safety Management, All India Travelers Book seller, New Delhi, 1989.

Essential Reading:

1. N.V. Krishnan, Safety in Industry, JaicoPublishery House, 1996.
2. Indian Boiler Acts and Regulations, Government of India.
3. Safety in the use of wood working machines, HMSO, UK 1992.
4. Health and Safety in welding and Allied processes, welding Institute, UK, HighTech. Publishing Ltd., London, 1989.

CH XXX SAFETY IN CHEMICAL INDUSTRY 3 credits [3-0-0]

PLANT COMMISSIONING AND INSPECTION

Commissioning phases and organization, pre-commissioning documents, process commissioning, commissioning problems, post commissioning documentation Plant inspection, pressure vessel, pressure piping system, non destructive testing, pressure testing, leak testing and monitoring- plant monitoring, performance monitoring, condition, vibration, corrosion, acoustic emission-pipe line inspection.

PLANT MAINTENANCE, MODIFICATION AND EMERGENCY PLANNING

Management of maintenance, hazards- preparation for maintenance, isolation, purging, cleaning, confined spaces, permit system- maintenance equipment- hot works- tank cleaning, repair and demolition- online repairs- maintenance of protective devices modification of plant, problems- controls of modifications.

Emergency planning, disaster planning, onsite emergency- offsite emergency, APELL

SAFETY IN PROCESS DESIGN AND PRESSURE SYSTEM DESIGN

Design process, conceptual design and detail design, assessment, inherently safer design chemical reactor, types, batch reactors, reaction hazard evaluation, assessment, reactor safety, operating conditions, unit operations and equipments, utilities.

Pressure system, pressure vessel design, standards and codes- pipe works and valves- heat exchangers- process machinery- over pressure protection, pressure relief devices and design, fire relief, vacuum and thermal relief, special situations,
disposal- flare and vent systems- failures in pressure system.

Basic control actions – PID control – Pneumatic controllers – Electronic controller – Ultrasonic sensors – Piezo resistive pressure sensor – Use of PLC to detect hazards and taking preventive actions.

STORAGES AND TRASPORTATION

General consideration, petroleum product storages, storage tanks and vessel- storages layout- segregation, separating distance, secondary containment- venting and relief, atmospheric vent,

pressure, vacuum valves, flame arrestors, fire relief- fire prevention and protection- LPG storages, pressure storages, layout, instrumentation, vapourizer, refrigerated storages- LNG storages, hydrogen storages, toxic storages, chlorine storages, ammonia storages, other chemical storages- underground storages- loading and unloading facilities- drum and cylinder storage- ware house, storage hazard assessment of LPG and LNG Hazards during transportation – pipeline transport. Cascaded N-capacities – Hybrid tank system for level control and temperature control

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PLANT OPERATIONS

Operating discipline, operating procedure and inspection, format, emergency procedures hand over and permit system- start up and shut down operation, refinery units- operation of fired heaters, driers, storage- operating activities and hazards- trip systems- exposure of personnel. Multi-loop control for distillation column and boiler systems.Specific safety consideration for Cement, paper, pharmaceutical, petroleum, petrochemical, rubber, fertilizer and distilleries.

Essential Reading:

1. Lees, F.P., Loss Prevention in Process Industries, Butterworths and Company, 1996.

Supplementary Reading:

1. Guidelines for Chemical Process Quantitative Risk Analysis by Center for Chemical Process Safety (CCPS), Wiley-AIChE; 2 edition 1999
2. Fawcett, Howard H., Wood William. S., Safety and Accident Prevention in Chemical Operations, Wiley inters, Second Edition, 1984
3. Roy E. Sanders, Chemical Process Safety - Learning from Case Histories, Elsevier Butterworth–Heinemann, USA, 2005.
4. "Accident Prevention Manual for Industrial Operations" NSC, Chicago, 1982.
5. Green, A.E., High Risk Safety Technology, John Wiley and Sons,. 1984.
6. Johnson.C.D., Process control instrumentation technology, PHI learning pvt.Ltd., New Delhi, 2010
7. Petroleum Act and Rules-1934, Government of India.
8. Carbide of Calcium Rules-1987, Government of India.

CH XXX INDUSTRIAL DISASTER MANAGEMENT 3 credits [3-0-0]

PHILOSOPHY OF DISASTER MANAGEMENT

Introduction to Disaster mitigation- Hydrological, Coastal and Marine Disasters- Atmospheric disasters- Geological, meteorological phenomena-Mass Movement and Land Disasters-Forest related disasters- Wind and water related disasters-deforestation-Use of space technology for control of geological disasters-Master thesis

TECHNOLOGICAL DISASTERS

Case studies of Technology disasters with statistical details-Emergencies and control measures-APELL-Onsite and Offsite emergencies-Crisis management groups-Emergency centers and their functions throughout the country-Software on emergency controls- Monitoring devices for detection of gases in the atmosphere-Right to know act.

SUSTAINABLE DEVELOPMENT

Bio Diversity-Atmospheric pollution- Global warming and Ozone Depletion-ODS banking and phasing out-Sea level rise-El Nino and climate changes-Eco friendly products-Green movements-Green philosophy-Environmental Policies-Environmental Impact Assessment-case studies-Life cycle

OFFSHORE AND ONSHORE DRILLING

Control of fires-Case studies-Marine pollution and control-Toxic, hazardous &Nuclear wastes-state of India's and Global environmental issues-carcinogens-complex emergencies-Earthquake disasters- the nature-extreme event analysis-the immune system proof and limits-

ENVIRONMENTAL EDUCATION AND POLICY

Population and community ecology-Natural resources conservation-Environmental protection and law-Research methodology and systems analysis-Natural resources conservation-Policy initiatives and future prospects-Risk assessment process, assessment for different disaster types- Assessment data use, destructive capacity-risk adjustment choice- loss acceptance-disaster aid- public liability insurance-stock taking and vulnerability analysis-disaster profile of the country-national policies-objectives and standards- physical event modification-preparedness, forecasting and warning, land use planning

Essential Reading:

1. Gilbert, M. Masters, Introduction to Environmental Engineering and Science, Prentice Hall, 2005
2. G. Tyler Miller , "Environmental Science: Sustaining the Earth (Environmental Science: Working with the Earth)", Wadsworth Publishing Company, 3rd edition, 1991.

SupplementaryReading:

1. G. Tyler Millerand Scott Spoolman, "Environmental Science: Principles, Connections and Solutions", Brooks Cole, 12th edition, 2007
2. Mackenzie Leo Davis and Susan J. Masten, "Principles of Environmental Engineering and Science", McGraw Hill Higher Education, 2nd edition, 2008

CH XXX ENVIRONMENTAL IMPACT ASSESSMENT 3 credits [3-0-0]

INTRODUCTION

Evolution of EIA – Concepts –Environmental Impact Statement (EIS) – EIA capability and limitations – Legal provisions on EIA

METHODOLOGIES

Methods of EIA –Check lists – Matrices – Networks – Cost-benefit analysis – Analysis of alternatives – Case studies. Rapid and Comprehensive EIA – Legislative and Environmental Clearance procedure in India – Prediction tools for EIA.

PREDICTION AND ASSESSMENT

Assessment of Impact on land, water and air, noise, social, cultural flora and fauna; Mathematical models; public participation – Resettlement and Rehabilitation- Rapid EIA.

ENVIRONMENTAL MANAGEMENT PLAN

Plan for mitigation of adverse impact on environment – options for mitigation of impact on water, air and land, flora and fauna

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EIA CASE STUDIES

Documentation of EIA – Post project monitoring – Environmental Audit- Life cycle assessment – EMS – case studies in EIA.

Essential Reading:

1. Canter,L., Environmental Impact Assessment, McGraw-Hill Inc.,New Delhi, 1996

Supplementary reading:

1. Canter. R. L., Environmental Impact Assessment, McGraw Hill, 1981.
2. John G. Rau and David. C. Wooten (Ed)., Environmental Impact Analysis Hand Book, McGraw Hill Book Company, 1980.

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CH XXX	HAZARDOUS WASTE MANAGEMENT	3 credits [3-0-0]

HAZARDOUS WASTE

Types and Sources of hazardous wastes - Need for hazardous waste management - Legislations on management and handling of municipal solid wastes, hazardous wastes, and biomedical wastes.

WASTE GENERATION

waste generation rates – Composition - Hazardous Characteristics – TCLP tests – waste sampling- Source reduction of wastes – Recycling and reuse. Handling and segregation of wastes at source – storage and collection of municipal solid wastes – Analysis of Collection systems - Need for transfer and transport – Transfer stations - labeling and handling of hazardous wastes.

WASTE PROCESSING

Processing technologies – biological and chemical conversion technologies – Composting - thermal conversion technologies - energy recovery – incineration – solidification and stabilization of hazardous wastes - treatment of biomedical wastes.

DISPOSAL

Disposal in landfills - site selection - design and operation of sanitary landfills- secure landfills and landfill bioreactors – leachate and landfill gas management – landfill closure and environmental monitoring – landfill remediation

INTEGRATED WASTE MANAGEMENT

Elements of integrated waste management

Essential Reading:

1. George Tchobanoglous, Hilary Theisen and Samuel A, Vigil, Integrated Solid Waste Management, McGraw- Hill, New York, 1993

SupplementaryReading:

1. CPHEEO, Manual on Municipal Solid waste management, Central Public Health and Environmental Engineering Organization, Government of India, New Delhi, 2000.

CH XXX	TRANSPORT SAFETY	3 credits [3-0-0]

TRANSPORTATION OF HAZARDOUS GOODS

Transport emergency card (TREM) – driver training-parking of tankers on the highways speed of the vehicle – warning symbols – design of the tanker lorries – earth chains-static electricity-responsibilities of driver – inspection and maintenance of vehicles-check list decanting procedures – communication.

ROAD TRANSPORT

Introduction – factors for improving safety on roads – causes of accidents due to drivers and pedestrians-design, selection, operation and maintenance of motor trucks-preventive maintenance-check lists-motor vehicles act – motor vehicle insurance and surveys.

DRIVER AND SAFETY

Driver safety programme – selection of drivers – driver training-tacho-graph-driving test driver's responsibility-accident reporting and investigation procedures-fleet accident frequency-safe driving incentives-slogans in driver cabin-motor vehicle transport workers act-road transport act and rules – driver relaxation and rest pauses – speed and fuel conservation – emergency planning.

ROAD SAFETY

Road alignment and gradient-reconnaissance-ruling gradient-maximum rise per k.m. factors influencing alignment like tractive resistance, tractive force, direct alignment, vertical curves-breaking characteristics of vehicle-skidding-restriction of speeds significance of speeds-Ground speed-Pavement conditions – Sight distance – Safety at intersections – Traffic control lines and guide posts-guard rails and barriers – street lighting and illumination-overloading-concentration of driver.

Plant railway: Clearance-track-warning methods-loading and unloading-moving cars safety practices.

SHOP FLOOR AND REPAIR SHOP SAFETY

Transport precautions-safety on manual mechanical handling equipment operations-safe driving-movement of cranes-conveyors etc., servicing and maintenance equipment-grease rack operation-wash rack operation-battery charging-gasoline handling-other safe practices-off the road motorized equipment.

Essential Reading:

1. Kadiyali, Traffic Engineering and Transport Planning, Khanna Publishers, New Delhi, 1983.
2. Motor Vehicles Act, 1988, Government of India.

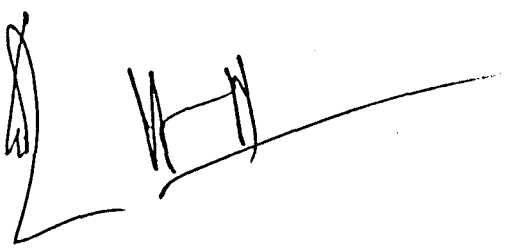
Supplementary Reading:

1. Popkes, C.A., Traffic Control and Road Accident Prevention, Chapman and Hall Limited, 1986.
2. Babkov, V.F., Road Conditions and Traffic Safety, MIR Publications, Moscow, 1986.
3. Accident Prevention Manual for Industrial Operations, NSC, Chicago, 1982.
4. Pasricha, Road Safety guide for drivers of heavy vehicle, Nasha Publications, Mumbai, 1999.
5. K.W.Ogden, Safer Roads – A guide to Road Safety Engineering, Amazon.com., 1995.

Annexure-IV

CURRICULUM COMMITTEE

Chairman	:	Prof.B.Subudhi, Professor, Electrical Engineering, NIT, Rourkela
Co-Chairman	:	Shri G.S.Khuntia, Vice President, MDC on SHE, Bhubaneswar
Members	:	Dr.C.R.Mohapatra,IFS(Retd), VP, MDC on SHE, Bhubaneswar
		Prof.Sushmita Mishra, Asso.Professor, NIT,Rourkela
		Er.R.N.Dash,IAS(Retd),EC member,MDC on SHE [Secretary,KIIT University],Bhubaneswar
		Er.P.C.Das,Director I/C and Chief Inspector of Factories & Boilers, Odisha
		Prof.(Dr) P.K.Das,Professor of Medicine[Ex-DMET,Odisha]
		Er.S.K.Bhuyan,Jt.Secy-cum-Treasurer,MDC on SHE, Bhubaneswar
Member Secretary	:	Shri G.D.Rath, Secretary,MDC on SHE, Bhubaneswar



Annexure-V

MoU COMMITTEE

Chairman	:	Dr.C.R.Mohapatra,IFS(Retd), VP, MDC on SHE, Bhubaneswar
Co-Chairman	:	Prof.S.Bhattacharya, Dean(Academic), NIT, Rourkela
Members	:	Shri G.S.Khuntia, VP, MDC on SHE, Bhubaneswar
		Er.S.K.Upadhyay, Registrar, NIT,Rourkela
		Er.R.N.Dash,IAS(Retd),EC Member, MDC on SHE, Bhubaneswar [Secretary, KIIT University]
		Er.P.C.Das,Director I/C and Chief Inspector of Factories & Boilers, Odisha
		Shri G.Upadhyaya,EC Member,MDC on SHE, Bhubaneswar [Ex-CMD,NALCO]
		Er.S.K.Bhuyan,Jt.Secy-cum-Treasurer,MDC on SHE, Bhubaneswar
Member Secretary	:	Shri G.D.Rath, Secretary,MDC on SHE, Bhubaneswar