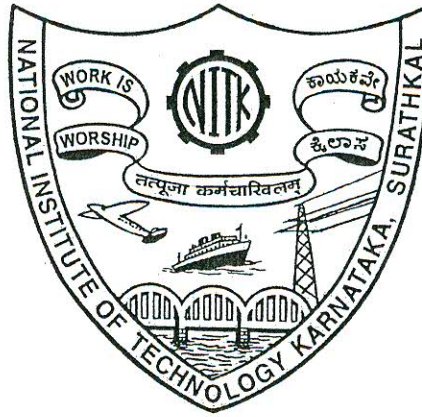


Item No: 27 Senate:C1



**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA
SURATHKAL**

MINUTES (19th)

OF

**NINETEENTH MEETING OF
BOARD OF STUDIES**

Date : 13.05.2011 (Friday)
Time : 02.00 PM
**Venue : Board Room,
N.I.T.K., Surathkal,
Post Srinivasnagar,
PIN - 575 025.**

Minutes of the Nineteenth combined Board of Studies (UG, PG, Research) Meeting held on 13th May, 2011 at 02.00 p.m. in the Board Room, NITK, Surathkal.

Members Present:

1. Prof. Gopal Mugeraya	...	Chairman
2. Dr. K. N. Lokesh	...	Member
3. Dr. K. C. Shet	...	Member
4. Prof. P. Prasad Rao	...	Member
5. Dr. Keshav Prasad Halemane	...	Member
6. Dr. M. K. Nagaraj	...	Member
7. Dr. A. U. Ravishankar	...	Member
8. Sri. K. Ramachandra	...	Representing Dept. of Mining.
9. Dr. Shanthi Thilagam	...	Member
10. Prof. Muralidhar Kulkarni	...	Member
11. Sri. Jora M. Gonda	...	Representing Dept. of Electrical
12. Dr. G. Ram Mohan Reddy	...	Member
13. Dr. G.C. Mohan Kumar	...	Member
14. Prof. K Narayan Prabhu	...	Member
15. Dr. A.V Adhikari	...	Member
16. Dr. S. M Hegde	...	Member
17. Dr. Kasturi. V. Bangera	...	Member
18. Dr. Shashikantha	...	Representing Dept. of Humanities
19. Dr. Jagannath Nayak	...	Member
20. Dr. R. Srinivasan	...	Member
21. Prof. Y. N. Srikant	...	Member
22. Prof. Srirangarajan	...	Member
23. Mr. K. Ravindranath	...	Secretary

Absent:

1. Prof. G. K. Shivakumar
2. Prof. S. G. Mayya
3. Prof. Subhash C. Yaragal
4. Prof. Laxman Nandagiri.
5. Prof. M. B. Saidutta
6. Dr. G. Umesh
7. Prof. T. P. Somasundaran
8. Dr. Radhakrishna Pillai

Minutes of Nineteenth BOS meeting held on 13-05-2011

Prof. Gopal Mugeraya, Chairman (BOS) and Dean (Academic) chaired the meeting and welcomed all the members to the **nineteenth BOS meeting**. He introduced the new members Prof. K Narayan Prabhu, HOD, Dept. of Metallurgical and Materials Engg, Prof. Muralidhar Kulkarni, HOD, Dept. of E&C Engg. He also mentioned the inclusion of two more members, Prof. Lakshman Nandagiri, Dean (P&D) and Dr. Subhash Yaragal, Associate Dean (UG). The Contributions of the former chairman, Prof. G Srinikethan and the out-going members were acknowledged and placed on records.

The minutes of **Eighteenth BOS** meeting were reviewed and approved as there were no comments received from the members.

ITEM NO. 19-BOS-1:

Modifications of M. Sc. (Physics) curriculum and additional elective for M.Sc. Course:

After seeking adequate clarifications for the need for such a change, the BOS resolved to recommend that the existing core course PH 802 be revised and offered as an elective and the current elective course PH 862 be revised and offered as a core course.

The BOS resolved to recommend that the II year M.Sc.(Physics) students may be permitted to register for one elective from other departments during each semester. *(Annexure – I) [Page No. 7]*

**For Senate
approval**

ITEM NO. 19-BOS-2:

Inclusion of new elective course of 400 series for B. Tech students:

The members were of the opinion that the course lacks laboratory component which is very much essential for such courses. Hence it was suggested to go for a 3 credit course of (2-0-2) format for this course.

The BOS resolved to recommend the course with suggested modification. *(Annexure – II) [Page No.10]*

**For Senate
approval**

ITEM NO. 19-BOS-3:

Inclusion of additional guide to research scholar:

The BOS resolved to approve the proposal to include Dr. Chennu Ranganayakulu, Scientist 'G', General Systems, ADA as additional guide for Mr. Amaranatha Raju.

For reporting to
Senate

ITEM NO. 19-BOS-4:

Inclusion of additional guide to research scholar:

The BOS resolved to approve the proposal to include Dr. Chennu Ranganayakulu, Scientist 'G', General Systems, ADA as additional guide for Mr. K V Ramanamurthy.

For reporting to
Senate

ITEM NO. 19-BOS-5:

Inclusion of additional guide to research scholar:

The item was withdrawn from the discussion as **full-time research** scholars can not be granted additional guide from outside the Institution as per the resolution of 25th Senate; 18-BOS-22.

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ITEM NO. 19-BOS-6:

Revision of M. Tech curriculum in Manufacturing, Thermal and Mechatronics Engineering:

The proposal from the Dept. of Mechanical Engineering was discussed in detail. A few specific suggestions like modifying the number of references for the course MF 815, Inclusion of latest references for the course MA 713 were suggested. It was also felt that in the course MF 815 (Nanotechnology) the course content deals more of nano science than technology. The course Industrial Tribology could be considered as a core course than elective.

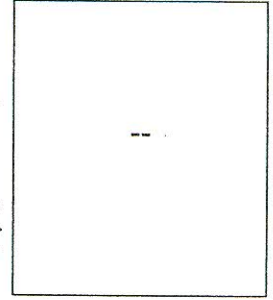
The BOS resolved that the proposal may be re-worked and be placed in the next Senate meeting. (*Annexure – III*) [*Page No. 12*]

**For Senate
approval**

ITEM NO. 19-BOS-7:

Modification in the proposed PG program (M.Tech. Green Engineering)

The members were informed that the proposal has been withdrawn by the Head, Mechanical Engineering for the time being due to the shortage of faculty/expertise.



ITEM NO. 19-BOS-8:

Modification of the PSE course IT 366 :

Since the course content is exactly same as the proposed PG course IT818, it was resolved not approve this course. However, it was recommended that the interested undergraduate students may be permitted to register for the PG course IT818. (*Annexure – IV*) [Page No. 18]

For Senate approval

ITEM NO. 19-BOS-9:

Modification to the course IT 813 :

The members were of the opinion that the course lacks laboratory component and hence it was suggested to go for a 3 credit course of (2-0-2) format.

The BOS resolved to approve the course with suggested modification and recommended for Senate approval. (*Annexure – IV*) [Page No. 18]

For Senate approval

ITEM NO. 19-BOS-10:

Revision of curriculum in the subject Fundamentals of Signal Processing :

The members felt that a detailed syllabus should be prepared. It was also felt that the course lacks laboratory component and hence it was suggested to go for a 4 credit course of (3-1-0) format.

The BOS resolved to approve the course with suggested modification and recommended for Senate approval. (*Annexure – V*) [Page No. 20]

For Senate approval

ITEM NO. 19-BOS-11:

Inclusion of additional guide to research scholar:

The BOS resolved to approve the proposal to include Dr. H N Nagamani, Joint Director, CPRI, and Bangalore as additional guide for Mr. T Bhavani Shankar.

It was observed that the CV of the proposed external guide, contained only the number of publications without details. It was suggested that at least few sample publications in the area of research be reported.

For reporting to
Senate

ITEM NO. 19-BOS-12:

New elective for M. Sc. (Physics); PH 876 General Theory of Relativity:

The BOS resolved to recommend the course with some minor corrections. (*Annexure – VI*) [Page No. 23]

For Senate
approval

ITEM NO. 19-BOS-13:

CO 449 Major Project I as a prerequisite for CO449 Major project II.

The BOS resolved to recommend that a student ending up in FA grade in Major project I in the seventh semester should register for the major project I during eight semester and should be allowed to register for Major project II during the summer course. (*Annexure – VII*) [Page No. 27]

For Senate
approval

ITEM NO. 19-BOS-14:

Corrections in MBA Syllabus:

The BOS resolved to recommend the corrections. (*Annexure – VIII*) [Page No. 28]

For Senate
approval

ITEM NO. 19-BOS-15:

Co-opting faculty member from outside the Institution as a member of RPAC:

The BOS resolved to recommend proposal in principle on a case to case basis. The DRPC is suggested to submit a panel of three external members from which the Chairman, BOS shall nominate one member. There is no financial support for this proposal. *(Annexure – IX) [Page No.33]*

For Senate approval

ITEM NO. 19-BOS-16:

Restructuring and Renaming the M.Tech. (SACA) Program:

The Department was asked to prepare a revised proposal incorporating a preamble, job opportunities, Laboratory courses, Computational components etc. and to be placed in the next BOS meeting.

Reporting to Senate

ITEM NO. 19-BOS-17:

Comprehensive revision of curriculum; UG/PG/PhD:

The BOS resolved to approve the proposal. It was opined that an Institute level workshop to work out the guidelines, framework, modalities etc be conducted. Following this the individual departments may go for the revision to suit the guidelines given by the Institute level authorities.

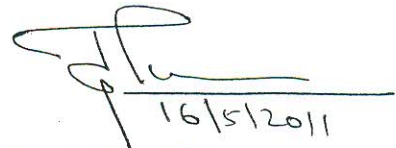
Reporting to Senate

Mr. K. Ravindranath, Secretary (BOS) and Dy. Registrar (Academic) proposed the vote of thanks to the chair and to the members.



(K. Ravindranath)
Secretary –BOS, NITK

16/5



16/5/2011

(Prof. Gopal Mugeraya)
Chairman-BOS, NITK

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

INTER-OFFICE COMMUNICATION (IOC)

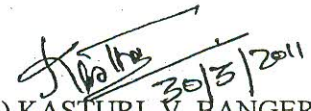
Ioc No. PHY/2011/139	Date:30-03-2011
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Priority-level	Initiator's Expectation
1. Urgent 2. Normal ✓	1. Approval . ✓ 2. Decision 3. Action 4. Suggestion sought 5. Information sought 6. Information conveyed

From (Initiator)	Routed-thru	To (Respondent)	Copies to
The Prof. and Head, Department of Physics.		Dean (A.A)	
Subject: Agenda items for the BOS.			
Reference(s) if any: NITK/BOS-2011/DR , dated18-03-2011.			

Note from the Initiator:

Please find enclosed here with the modifications to M.Sc.(Physics) curriculum and an additional elective for M.sc Course to be placed as an agenda item for the next BOS.


 Dr. (Mrs.) KASTURI .V. BANGERA
 विभागाध्यक्ष / H.O.D .
 भौतिकी विभाग / Physics Dept.
 राष्ट्रीय प्रौद्योगिकी संस्थान कर्नाटक सुराठकल
NITK SURATHKAL
 मंगलूर - 575 025, कर्नाटक
 MANGALORE - 575 025, KARNATAKA

For the Respondent's use

Proceedings of the DPGC meeting held on 29-03-11⁸⁵ at 12.00 noon in the Department of Physics, N.I.T-k

DPGC meeting was held in the Department to discuss the modification in the M.Sc. Physics Curriculum. It has been resolved to recommend the changes in the curriculum as follows.

① The existing course PH 802 - Semiconductor Devices and applications (3-1-0)-04 credits be revised and offered as an elective, and the Course PH 862 - Nuclear and Reactor Physics (3-0-0) 03 be revised and offered as a core subject at III sem M.Sc. from the next academic year 2011-2012 onwards.

② Regarding the provision of open elective for 2 year M.Sc. (Physics) students - Second year M.Sc. students may be permitted to take one open elective from other Departments during each semester.

The following members were present.

1) H.D. SHASHI KALA, H.D. Shashikala 29/03/11

2) Kasturi V. Bangra Kasturi V. Bangra 29/3/2011

3) H.S. Nayyaraj/H.S. Nayyar H.S. Nayyaraj 29/3/2011

4) MN Satyanarayan MN Satyanarayan 29/3/2011

5) Ajith K M

6) N K Chalapathankar N K Chalapathankar 29/3/11

7) G. UMESH G. Umesh



भौतिकी विभाग
राष्ट्रीय प्रौद्योगिकी संस्थान कर्नाटक, सुरत्कल, मंगलूर – 575025
DEPARTMENT OF PHYSICS
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA , SURATHKAL,
MANGALORE - 575025

(PH802)

Nuclear Physics

(3-1-0)4

General properties of Nuclei-Nuclear radius, charge distribution, Deuteron problem-Spin dependence of nuclear force, Nuclear binding energy, Electric and magnetic moments, Nuclear models. Radioactivity and Nuclear decay-Alpha decay-Gamow's theory, Beta decay-Fermi's theory, Gamma decay, Nuclear Reactions. Scattering theory-Application to Deuteron, Nucleon-nucleon scattering, partial wave analysis, Cross section, Optical theorem, Perturbation theory –Time independent-first and second order – Applications. Experimental Nuclear physics-Detectors-Gas and solid state detectors, Mass spectroscopy, particle accelerators. Particle physics-Elementary particles, classification, Quark model, SU3 group.

Kenneth Krane, Nuclear Physics, John Wiley and sons, 1987

Griffith, Introduction to Elementary Particles, John Wiley and sons, 1987

R.D. Evans, Atomic Nucleus, Tata McGraw Hill, New York, 1955

(PH862)

Semiconductor Devices and Applications

(3-0-0)3

p-n Junction and diodes - p-n junction details-junction theory, diode characteristics, applications-rectifier, clipper, climber circuits, voltage regulator. Special purpose diodes – Zener Diode, Tunnel diode, Schottky diode-characteristics & applications, Varicap, PIN diode, Photodiode, Diac, Triac, LED, Laser diode, Solar cells. Transistors & applications – BJT fundamentals, different configurations, characteristics, load line, transistor amplifiers-small signal amplifier, power amplifier, different classes of amplifiers, CE amplifier. Field effect devices-JFET and its characteristics, MOSFET – different modes and characteristics, Operational Amplifiers and applications – Ideal op-amp characteristics, modes-inverting and non inverting, summing and differential amplifiers, differentiator and integrators, instrumentation amplifiers. Filters – Passive filters-low pass, high pass and band pass filters, Active filters – Butterworth low and high pass filters, Logic gates, Boolean expression and Karnaugh maps. Multivibrators – Monostable, Bistable multivibrators, Timers

A.P.Malvino, Electric Principles (3rd or newer editions), Tata McGraw Hill 1993

P.B. Zbar, A.P.Malvino and M.A. miller, Basic Electronics: A text book manual, Tata McGraw Hill, New Delhi, 1990

Ramakant A Gayakwad, Op-Amps and Linear Integrated Circuits, Printice Hall of India, New Delhi, 1997
Electronic Devices and Circuits, David Bell, Printice Hall of India (2004/latest edition)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
NITK - Surathkal

Ref: NITK / CSE/ BOS/ AGN/ 278 /2011

Date: 06-04-2011

From

Dr. P. Santhi Thilagam
Head of the Department

To

The Dy. Registrar (Academic)/
Secretary B.O.S
NITK - Surathkal

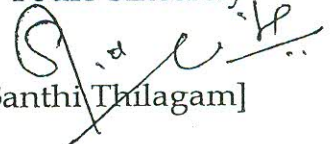
Dear Sir

Sub: Agenda for BOS Meeting - reg.Ref: Letter No. NITK/BOS-2011/DR dated 18th March 2011

With reference to the above, we propose to include new elective courses of 400 series for B.Tech students. The syllabus approved by DUGC is enclosed.

Thank you

Yours Sincerely


[P. Santhi Thilagam]**Dr. P. SANTHI THILAGAM**
Head of the Department
Dept. of Computer Science and Engineering.
National Institute of Technology Karnataka
Surathkal, Srinivasnagar (P.O.)
Mangalore - 575025

Encl: DUGC approved syllabus

CLOUD COMPUTING

Course Objectives:


- This course investigates current trends and topics in Cloud Computing. Discussions from the literature to the most advanced approaches in Cloud Computing will be considered and we will analyze each new approach and identify the role of current technology, such as security and information processing in cloud systems. Study also includes open source cloud approaches and programming methodologies.
- The primary objective is to provide the introduction to the current practices of cloud computing, often also known as the Internet as a platform. Mainly focusing on cloud computing models, techniques, and architectures, this course will provide students with the knowledge and hand-on experience in designing and implementing cloud-based software systems.

Course Syllabus:

1. *Overview of Distributed Computing*
 - Trends of computing
 - Introduction to distributed computing
 - Next big thing: cloud computing
2. *Introduction to Cloud Computing*
 - What's cloud computing
 - Properties & Characteristics
 - Service models
 - Deployment models
3. *Infrastructure as a Service (IaaS)*
 - Introduction to IaaS
 - Resource Virtualization
 - Server
 - Storage
 - Network
 - Case studies
4. *Platform as a Service (PaaS)*
 - Introduction to PaaS
 - Cloud platform & Management
 - Computation
 - Storage
 - Case studies
5. *Software as a Service (SaaS)*
 - Introduction to SaaS
 - Web services
 - Web 2.0
 - Web OS
 - Case studies
6. *Open Source Approaches to Cloud Computing with case studies*
7. *Cloud Issues and Challenges*
 - Cloud provider Lock-in
 - Security

References:

1. Cloud Computing, A Practical Approach, T. Velte, A. Velte, R. Elsenpeter, McGraw-Hill, 2009.
2. Cloud Computing Principles and Paradigms – Raj Kumar Buyya et.al (editors), Wiley, 2011.
3. Articles from journals, conference proceedings and Web pages



Chairman
DUGC/DPGC/DRPC
Dept. of Computer Engg.
NITK-Surathkal
Srinivasnagar - 575025



Annexure - III

Mechanical Engineering Department
**National Institute of Technology
Karnataka, Surathkal**

Dr. G. C. Mohan Kumar
Professor & Head

Mangalore 575 025, DK
Phone: 0824 2474000 Ext 3049,
mechodnitk@gmail.com

Ref. No: NITK/ME/2011 1542

Date: 16- 05-2011

To

The Chairman (BOS)/
The Dean (Acad)
NITK, Surathkal

Dear Sir:

Sub: Revision of curriculum/syllabi for M.Tech programmes in Mechanical Engineering

I am pleased to forward herewith the revised syllabi for the M.Tech programmes in Mechanical Engineering after incorporating all the recommendations suggested by the BOS members in its meeting held on 13th May 2011. The same along with other agenda items of the department may kindly be forwarded to the next meeting of the senate for final approval.

Yours faithfully



 G.C.MOHAN KUMAR

TH 822 GAS DYNAMICS (3- 0- 0) 3

Kinetic theory of gases, molecular energies, transport phenomena, intermolecular forces, real gases, molecular collisions, energy transfer; control volume analysis, introduction to compressible flow, sonic velocity, mach number, varying area adiabatic flow, standing normal shocks, moving and oblique shocks, Prandtl- Meyer flow, Fanno flow, Rayleigh flow, real gas effects, Boltzmann equation, simple flows, flows induced by temperature fields, flows with evaporation and condensation

References:

1. George Turrel, *Gas Dynamics: Theory and Applications*, John Wiley & Sons, 1997
2. Robert D Zucker and Oscar Biblitz, *Fundamentals of Gas dynamics*, John Wiley & Sons, 2002
3. Yoshio Sone, *Molecular gas dynamics: theory, techniques and application*, Birk Hauser, Boston, 2007
4. Ethirajan Rathakrishnan, *Applied Gas Dynamics*, John Wiley & Sons, 2010.

TH 823 MATERIALS FOR NUCLEAR ENERGY (3- 0- 0) 3

Structure of a nuclear power plant, requirements of reactor materials, fuel materials, plutonium, uranium and thorium and their alloys & compounds, core materials: beryllium, graphite, control and shielding materials, magnesium & its alloys, aluminum & alloys, zirconium & alloys, austenitic stainless steel; materials for reactor vessel and other components, pearlitic steels ferritic chromium stainless steels, copper alloys, titanium and its alloys, coolants used in reactors: radiation embrittlement, corrosion of reactor materials, mechanical properties of materials.

References:

1. V. Gerasimov & A Monakhov, *Nuclear Engineering Materials*, Mir Publishers, Moscow, 1983.
2. D.S Clark & W.R. Varney, *Physical Metallurgy for Engineering*, East West Press, New Delhi, 1987.
3. C. M. Srivastava & C. Srinivasan, *Science of Engineering Materials*, New Age International, 1997.

TH 824 COGENERATION AND ENERGY EFFICIENCY (3- 0- 0) 3

The concept of cogeneration, main design parameters for cogeneration, cogeneration alternatives, Bottoming and topping cycles, Steam turbine plants, Gas turbine plant, Diesel and gas engine plants, Thermodynamic evaluation, Combined cycle applications, Sterling engine, Industry / utility cogeneration, Tri generation, Techno economic and Environmental aspects, Cogeneration in sugar, textile, paper and steel industry, Case studies.

References:

1. David H. Thomas, *Energy Efficiency Through Combined Heat and Power or Cogeneration (Energy Policies, Politics and Prices)*, NOVA, 2010
2. *Guidebook on Cogeneration as a Means of Pollution Control and Energy Efficiency in Asia by Economic & Social Commission for Asia & the Pacific*, United Nations Economic, Social Commission for Asia, and the Pacific, 2000.

TH 825 FUEL TECHNOLOGY (3- 0- 0) 3

Solid, liquid and gaseous fuels, Coal as a source of energy and chemicals in India, Coal preparation, Carbonization, Gasification and liquefaction of coal and lignite, principle of combustion, Petroleum and its derived products, Testing of liquid fuels, Petroleum refining processes, Inter-conversion of fuels, Natural gases and its derivatives, sources, potential, Gas hydrates, Combustion appliances for solid, liquid and gaseous fuels, Introduction to nuclear fuel, RDF, Bio-fuels, etc.

References:

1. *Himus-Fuels Technology*, Leonard Hill Ltd., London, 2007
2. *Shaha -Combustion Engineering and Fuels Technology - (Oxford & IBM)*, 2004.
3. R.J. Sarjant, *Efficient use of fuels - HMSO Publication*, London.

TH 826 FUSION ENERGY (3- 0- 0) 3

Fission and fusion, Need for plasma, Lawson criterion, Confinement problem, Laser driven fusion, Magnetic confinement, Plasma concept, Single particle motions in complex magnetic field geometries, Equilibrium and stability, Cross field transport, Important heating schemes, Tokamak and magnetic mirror, Reactor concepts, Current status.

References:

1. Jeffrey P. Freidberg, *Plasma Physics and Fusion Energy*, Cambridge University press, 2008.
2. A. Harms, K. F. Schoepf, G. H. Miley, and D. R. Kingdon, *Principles of Fusion Energy: An Introduction to Fusion Energy for Students of Science and Engineering*, World Scientific, 2000.

TH827 AUTOMOTIVE FUELS AND FUEL SYSTEMS (3- 0- 0) 3

Conventional liquid HC fuels, Properties of conventional fuels, Alternative engines and fuels, including for racing, Fuel tanks and measurement of their contents, Transferring the fuel from tank to metering unit, Fundamental

principles of carburetion, Elements of carburetors, Constant depression and fixed venturi carburetors in practice, Induction manifold design, LPG fuel and mixing systems, Gasoline injection, Combustion and combustion chambers, Emissions and their control, Sampling and analysis of emissions, Crude oil delivered diesel fuel, Fuel quality and additives, Alternative fuels, Injectors and in-line and unit injection pumps, Rotary and distributor type injection pumps. Test cycles, sampling and analysis of exhaust emissions, Optimizing air induction- variable valve timing and differences in approach for diesel and gasoline engines, Optimizing air induction- induction pipe tuning, Optimizing air induction- Turbo charging and supercharging, complex pressure wave charger, Introduction to alternate fuels, biomass combustion equipment, biomass fuel supply and purchasing, processing network, fuel switching feasibility study

References:

1. T.K. Garret, Automotive fuels and fuel systems Vol. 1 & 2, *John Wiley & Sons, 2008*
2. Thomas McGowan, Biomass and Alternate fuel systems an engineering and economy Guide, *John Wiley & Sons, 2009*

TH828 BIO-FUELS IN IC ENGINES (3- 0- 0) 3

Introduction to global energy sources, Bio energy, Bio diesel-Introduction to biodiesel concept, physical and chemical properties, Production of biodiesel: primary raw materials- non edible, edible and waste frying oils, Processing of vegetable oils as biodiesel: transesterification process, batch processing, continuous processing, Basic plant equipments, and economic benefits of biodiesel. Bio diesel performance: Engine combustion process, engine performance tests and emissions with biodiesel blends. Ethanol and methanol: global market and future prospect, properties, production methods, Performance and emissions using ethanol and methanol blends in IC engines.

References:

1. Ahindra Nag, Biofuels refining and performance, McGraw-Hill Professional, 2008.
2. Ayhan Demirbas, Biodiesel: a realistic fuel alternative for diesel engines, Springer, 2008.
3. Lucas Reijnders, Mark A. J. Huijbregts, Biofuels for road transport: a seed to wheel perspective, Springer, 2009.
4. Joshua Tickell, Kaia Tickell, from the fryer to the fuel tank: the complete guide to using vegetable oil as an alternative fuel, Biodiesel America, 2000.

TH 829 PYROLYSIS AND TORREFACTION OF BIO MASS (3- 0- 0) 3

Significance of pyrolysis and torrefaction of biomass, Pyrolysis methods for biomass and other organic waste materials generated in Industries, Municipality etc., to produce Biofuels, Vacuum pyrolysis, Processes involved for Biomass, Biochar, Torrefaction methods, process of torrefaction, pelletisation/briquetting processes, densification methods, biocoal production, gasification of biomass.

References:

1. Bergman, P.C.A.; Kiel, J.H.A., 2005, "Torrefaction for biomass upgrading", ECN report, ECN-RX—05-180
2. Bergman, P.C.A.; Boersma, A.R.; Zwart, R.W.H.; Kiel, J.H.A., 2005, "Development of torrefaction for biomass co-firing in existing coal-fired power stations", ECN report ECN-C—05-013
3. Bergman, P.C.A., 2005, "Combined torrefaction and pelletisation – the TOP process", ECN Report, ECN-C—05-073
4. Bergman, P.C.A.; Boersma, A.R.; Kiel, J.H.A.; Prins, M.J.; Ptasiński, K.J.; Janssen, F.G.G.J., 2005, "Torrefied biomass for entrained-flow gasification of biomass", ECN Report ECN-C—05-026.

MF 703 ROBOTICS: MECHANICS, CONTROL & PROGRAMMING (3-0-0) 3

Introduction to Robotics-Robotics System-Classification of Robots-Robot Characteristics-Kinematics for manipulator-Frames and Transformations-Forward and inverse Kinematics-DH representation-Derivation of forward and Inverse kinematic equations for various types of Robots- Applications of Robots. Introduction to manipulator Jacobian- Tool Jacobian- Velocity Propagation from link to link-Static forces in manipulators-Jacobian in Force domain-Introduction to dynamic analysis-Lagrangian formulation-Trajectory planning-Joint space and Cartesian space.

References:

1. John J Craig, *Introduction to Robotics, Mechanics and control, second Edition Addison – Wesley, 1999*
2. Saeed B Niku, *Introduction to Robotics, Analysis, Systems and applications. Prentice Hall India-2002.*
3. Mark W Spong & M Vidyasagar, *Robot Dynamics and Control, John Wiley & Sons, 1989*
4. K S Fu R C Gonzales, C S G Lee: *Robotics Control, Sensing, Vision and Intelligence, McGraw Hill 1987*
5. R P Paul : *Robot Manipulators Mathematics Programming, Control, The computer control of robotic manipulators, The MIT Press 1979*

MF706 MODERN MACHINING PROCESSES (3-0-0) 3

Introduction to advanced machining processes –EDM, ECM, AJM, PAM, EBM, USM, LBM– Principles, Mechanism of material removal –material removal rate-Dynamics-Process parameters – Machining accuracy and finish, – Dynamics of ECM process – tool profile correction –Thermal Analysis. of chemical machining, Ion beam

machining, Modified conventional machining, hot machining – Principle of restricted contact cutting, high production cutting tools for turning and drilling, deep hole drilling, SPDT. Micro machining; micro-turning, micro-milling, micro-drilling, micro EDM, micro- WEDM, micro ECM, etc., ultra-precision machining, electrolytic in-process dressing and grinding, high speed machining, nano surface generation, ductile cutting of silicon wafers, mechanism of ductile cutting, nano metric cutting, chip formation, recent developments.

References:

1. *Debarr & Oliver – Electrochemical machining – American Elsevier Publishing Company, Inc, 2004.*
2. *Bhattacharya, A., New Technology – The institution of Engineers (India), 2000.*
3. *Krasyuk, Electro-spark machining of metal, consultants bureau, New York, 2003..*
4. *Ghosh and Mallick – Manufacturing Science – John Wiley & Sons, 2004.*
5. *Vijay K. Jain Advanced Machining Process, Allied Publishing Pvt. Ltd., 2002.*
6. *P. K. Mishra, Non-conventional machining – Narosa Publishing House – 1997.*

MF 814 INDUSTRIAL TRIBOLOGY (3-0-0) 3

Introduction-Historical background, Bearing concepts and typical applications. Viscous flow concepts-Conservation of laws and its derivations: continuity, momentum (N-S equations) and energy, Solutions of Navier-Stokes equations. Order of magnitude analysis, General Reynolds equation-2D and 3D (Cartesian and Cylindrical), Various mechanisms of pressure development in an oil film, Performance parameters. ; Boundary Layer Concepts-Laminar and turbulent flow in bearings, mathematical modeling of flow in high-speed bearings. Elastic Deformation of bearing surfaces-Contact of smooth and rough solid surfaces, elasticity equation, Stress distribution and local deformation in mating surfaces due to loadings, methods to avoid singularity effects, Estimation of elastic deformation by numerical methods-Finite Difference ; Method (FDM), Governing equation for evaluation of film thickness in Elasto-Hydrodynamic Lubrication (EHL) and its solution, Boundary conditions. Development of computer programs for mathematical modeling of flow in bearings, Numerical simulation of elastic deformation in bearing surfaces by FDM.

References:

1. *Mujamdar.B.C "Introduction to Tribology of Bearing", Wheeler Publishing, New Delhi 2001.*
2. *Dudley D.Fulier " Theory and practice of Lubrication for Engineers", New York Company.1998*
3. *Moore "Principles and applications of Tribology" Pergamon press.*
4. *Radixmovsky, "Lubrication of Bearings - Theoretical principles and design" The Oxford press Company, 2000.*
5. *Susheel Kumar Srivasthava "Tribology in industry" S.Chand and Co.*

MF 816 MATERIALS SELECTION IN MECHANICAL DESIGN (3-0-0) 3

Design Process-Introduction: materials - history and character; Organizing materials and processes; Matching material to design; Materials Selection Charts, Density and elastic moduli; Stiffness-limited design; Plasticity, yielding and ductility; Strength-limited design; Fracture and fracture toughness; Cyclic loading, damage and failure; Fracture-limited design; Friction and wear; Materials and heat; Using Materials at high temperatures; Conductors, insulators and dielectrics; Magnetic Materials; Materials for Optical Devices; Oxidation, corrosion and degradation; Manufacturing processes; Processing and properties; Materials, processes and the environment process, material and shape selection, the design of hybrid materials, 'eco' selection, and industrial design, Case Studies.

References:

1. *M.F. Ashby, Materials Selection in Mechanical Design, Butterworth Heinemann, 2010*
2. *Michael Ashby, Hugh Shercliff, and David Cebon, 2010, Materials: Engineering, Science, Processing and Design (2nd edition)*
3. *M.F. Ashby and K. Johnson, Materials and Design, Butterworth Heinemann, 2nd edition, 2010*
4. *Ashby & Jones - Engineering Materials Vol 1 & 2, Butterworth Heinemann, 2000.*

MF 817 FRACTURE MECHANICS (3-0-0) 3

History of failure by Fracture; failure of structures, bridges, pressure vessels and ships, brittle fracture, development of testing for failure, identification of reasons for failure, existence of crack, Griffith crack and experiment, energy release rate and stress for failure in presence of crack. Stress Field around Crack Tip; revision of theory of elasticity, conformal mapping, Airy's stress function for crack tip stress field with crack emanating from straight boundary, stress state in crack tip vicinity, modes of crack face deformation, stress intensity factor and Irwin's failure criterion, fracture toughness. Determination of Stress Intensity Factor, different specimen configuration, numerical techniques- boundary collocation and boundary integral, finite element method, experimental method- reflection and refraction polariscopy, Determination of fracture toughness. Energy Consideration; potential energy, surface energy, plastic deformation around crack tip, energy release rate, compliance and correlation with fracture toughness, crack opening displacement (COD), COD as fracture criterion, experimental determination of COD, use of fracture toughness and COD as design criteria. Crack Propagation; law of fatigue crack propagation, life calculation when a crack is present and loaded, microscopic aspects of crack propagation, elastic crack and plastic relaxation at crack tip.

Reference Books:

1. *Fracture Mechanics Fundamentals and Applications* by TL Anderson; CRC Press, 2001.
2. *David and Bruck -Elementary Engineering Fracture Mechanics*; Norelco, 2001.
3. *ST Rolfe and JM Barson -Fracture and Fatigue Control in Structure*; Prentice Hall, 2000.
4. *AS Tetelman and AJ McEvily, Fracture of Structural Materials ; John Wiley and sons,2001*

MC 701-A DESIGN & MANUFACTURING (3-0-0) 3

Design Process, Mechanical Properties of Engineering Materials, Structure, Properties Relationship, Materials Selection in Mechanical Design, Selection of Materials, Shape, Processes; Design for Manufacture, Design for Environment, Computer Integrated Manufacturing, Principles of Mechanisms, Machine Dynamics, Primary & Secondary ,Manufacturing Processes, Casting, Metal Forming, Machining Processes, Press Working, Principles of Machine Tools, Automated Manufacturing.

References:

1. *Michael Ashby: Materials selection in Mechanical Design, Butterworth-Heinemann, 1996*
2. *Kalpakjian, Schmid and Chi- Wah Kok: Manufacturing Processes for Engineering Materials, Prentice Hall, 5th Edn.*
3. *GK Lal, Gupta and Reddy: Fundamentals of Design & Manufacturing, Narosa Publishing House, 2008.*
4. *George E. Dieter, "Engineering Design, A Materials and Processing Approach", McGraw Hill, 1983.*
5. *J.E. Shigley and S.R. Mischke, Mechanical Engineering Design, McGraw Hill, 1989*

MC 705-A FLUID MECHANICS & HEAT TRANSFER (3-0-0) 3

Equation of Continuity, Euler's equations of motion – Navier Stokes equations. Hydrostatic, Analysis of fluid motion in integral form – Concept of a system and a control volume, Laminar & Turbulent Flows, Hydrodynamics, , Basic Thermodynamics, Air Standard Cycles, Diesel & Petrol Engines, Heat Transfer Fundamentals, Conduction, Convection, Radiation, Design of Heat Exchanger, Refrigeration & Air Conditioning

References:

1. *Yunus A Cengel, Heat Transfer: A Practical Approach, McGraw Hill, 2002*
2. *F.P.Incropera, and D.P.Dewitt, Fundamentals of Heat & Mass Transfer, John Wiley, Fourth Edition, 1998.*

MA 713 MATHEMATICAL METHODS FOR ENGINEERS (3-1-0) 4

Revision of Linear Algebra, Linear Transformations, Range and Kernel, Isomorphism, Matrix of transformations and Change of basis. Series Solutions of ODE and Sturm-Liouville Theory: Power series solutions about ordinary point, Legendre equation and Legendre polynomials, Solutions about singular points; The method of Frobenius, Bessel equation and Bessel Functions. Sturm-Liouville problem and Generalized Fourier series. Partial Differential Equations: Second order PDEs, Classifications, Formulation and method of solutions of Wave equation, Heat equation and Laplace equation. Tensor Calculus: Line, area and volume integrals, Spaces of N-dimensions, coordinate transformations, covariant and mixed tensors , fundamental operation with tensors, the line element and metric tensor, conjugate tensor, Christoffel's symbols , covariant derivative.

References:

1. *G. Hadley, Linear Algebra, Narosa, 2002.*
2. *A. N. Kolmogorov & S. V. Fomin, Elements of the Theory of Functions and Functional Analysis, Addison Wesley, 2001.*
3. *Sokolnikoff and Redheffer – Mathematics of Physics and Engineering. 2nd edition. McGraw Hill, 2006.*
4. *S. Sokolnikoff, Tensor Analysis, Wiley. New York, 2006.*
5. *Marsden, Ratiu, Abraham Manifolds, Tensor analysis, and Applications. Springer, 2001.*
6. *J. L. Synge, Tensor Calculus, Dover Publications (July 1, 1978)*
7. *L.A.Pipes and L.R. Harwill: Applied Mathematics for Engineers and Physicists, Mc Graw Hill, 2004.*

MF 815 NANOTECHNOLOGY (3-0-0) 3

Introduction to Nanotechnology: Characteristic scale for quantum phenomena, NANO-SENSORS

Imaging Sensors (Far-Field and Near-Field) - Position Sensors - Capacitive Sensors - Linear Variable Differential Transformer - Interferometric Sensors - STM Tips Based, Etc - Force and Pressure Sensors - Strain Gauges - Deflection Based - AFM, Etc. - Visual Force Sensing - Bending Imaging Etc. - Capacitive Force/Tactile Sensors - Accelerometers- Gyroscopes - Chemical Sensors - Flow Sensors, Etc. ,NANO-ACTUATORS, Piezoelectric Actuators - Thin-Film Type - ZnO, Etc. Films - Surface Acoustic Waves - PZT Actuators as also integrated Sensors - Electrostatic, Thermal, Ultrasonic, Electro, Magnetostrictive, and Shape Memory - Alloy Based Actuators - Polymer Actuators - Dielectric Elastomers -Carbon Nanotube (CNT) Actuators - Biomolecular Motors.NANO MANIPULATORS,SPM Probes and Micro/Nanogrippers,Carbon Nanotube Manipulation using Nanoprobes - Case Study: High Density Data Storage Usin Nanoprobes .Micro/Nanofabrication - Micro/Nano Assembly, Biomimetics and Design Strategy - Case Study: Roboflies: Biomimetic Micromechanical Flying Robots - Kinematics and Dynamics ,NANODEVICES, COMPUTATIONAL NANOTECHNOLOGY

References:

1. Charles P. Pode, Frank J Owens -*Introduction to Nano Technology*, John Wiley and Sons Ltd.,2003, Canada
2. William A Goddard III, Donald W Brenner, Sergey Edwart Lyschevski and Gerald J.Iafrate, "*Handbook of Nanoscience Engineering and Technology*", CRC Press, New York (2003).
3. M. Elwenspoek and R. Wiegerink, *Mechanical Microsensors*, Springer-Verlag Berlin, 2001.
4. J. Israelachvili, *Intermolecular & Surface Forces*, Academic Press Ltd., 2nd Edition
5. William moreau "*Semiconductor lithography Principles, Practices and Materials*", Plenum Press (1988).
6. Robert Kelsall, iam Hamley and Mark Geoghegan, "*Nanoscale Science and Technology*", John Wiley and sons(2005)

Annexure - IV

Department of Information Technology
NITK - Surathkal

Date: 04-04-2011

From

Prof. Ram Mohana Reddy
Professor & Head
Dept. of IT
NITK - Surathkal

To

Dy. Registrar (Academic)
NITK - Surathkal

Sir,

Sub: Submitting the agenda items for discussion and approval in the next
BOS - reg.

With reference to the above, I am here by submitting the proposed agenda
from our department. Please include this in the agenda for the next BoS.

A. UG Courses

Modification of the PSE course IT366 - Parallel Programming to include current
trend of GPGPU computing aspects as well. Introduction to programming on
massively parallel processors like NVIDIA GPGPUs or AMD APUs. Addition of
relevant text books and references to programming tools.


B. PG Courses

Modification to the course IT813 - Parallel Programming to include current trend of
GPGPU computing aspects as well. Introduction to programming on massively
parallel processors like NVIDIA GPGPUs or AMD APUs. Addition of relevant text
books and references to programming tools.

Attached list shows the new course content as proposed.

Thanking You

Yours faithfully,


(Prof. Ram Mohana Reddy)
Head of the Department
~~Dr. G. Ram Mohana Reddy~~
Professor & Head

Department of Information Technology
National Institute of Technology Karnataka, Surathkal
Srinivasnagar P.O., Mangalore - 575 025, INDIA

IT366 PARALLEL PROGRAMMING**(3-0-0) 3 PREREQ : IT303**

Introduction to Parallel Computer Architectures, Parallel Programming with OpenMP, Parallel Programming with MPI, Advanced concepts in MPI, Programming with OpenMP3.0 and software transactional memory. Programming with massively parallel processors like GPGPUs and APUs. Exposure to tools like profilers and debuggers on such architectures.

J. Dongara, I. Foster, G. Fox, W. Cropp et al, "Sourcebook of Parallel Programming", Morgan Kaufmann. Barbara Chapman, Gabriele Jost et.al, "Using OpenMP: Portable Shared Memory Parallel Programming", Scientific and Engineering Computation, MIT 2008.

B. Wilkinson and M. Allen, "Parallel Programming: Techniques and Applications", Prentice Hall.

S. Akhter and J. Roberts, "Multi-Core Programming-Performance through Multi-threading", Intel Press, 2006

David B. Kirk and Wen-mei W. Hwu, "Programming Massively Parallel Processors: A Hands-on Approach (Applications of GPU Computing Series)", Elsevier Press, 2010

IT813: PARALLEL PROGRAMMING**(3-0-0) 3**

Introduction to Parallel Computer Architectures, Parallel Programming with OpenMP, Parallel Programming with MPI, Advanced concepts in MPI, Recent Advances in Parallel Programming techniques like Task, Parallelism using TBB, TL2, Cilk++ etc. and software transactional memory techniques. Advances in programming on massively parallel processors like GPGPUs and APUs and introduction to compilers and tools on such machines.

J. Dongara, I. Foster, G. Fox, W. Cropp et al, "Sourcebook of Parallel Programming", Morgan Kaufmann.

Barbara Chapman, Gabriele Jost et.al, "Using OpenMP: Portable Shared Memory Parallel Programming", Scientific and Engineering Computation, MIT 2008.

B. Wilkinson and M. Allen, "Parallel Programming: Techniques and Applications", Prentice Hall.



S. Akhter and J. Roberts, "Multi-Core Programming-Performance through Multi-threading", Intel Press, 2006

David B. Kirk and Wen-mei W. Hwu, "Programming Massively Parallel Processors: A Hands-on Approach (Applications of GPU Computing Series)", Elsevier Press, 2010

Note Submitted to Dean (Academic), NITK**Sub: Agenda Items for BOS Meeting- Reg.****Ref: No.NITK/BOS-2011/DR Dt. May 05, 2011**

DUGC/DPGC of IT Department in its meetings held on 09-05-2011 and 16-05-2011 has recommended the following changes in the B.Tech (IT) and M.Tech (IT) curriculum to be implemented from the academic year 2011-12 onwards while considering the recent developments in Computer Science and Information Technology in general and Human Centered Multimedia and High Performance Computing in particular for revising the syllabus in the subjects of IT201: Fundamentals of Signal Processing and IT818: Parallel Programming. The curriculum details are attached for your kind perusal.

- The syllabus of IT201: Fundamentals of Signal Processing and IT818: Parallel Programming has been revised as per requirements of Information Technology Industry/Research.
- The syllabus of the said subjects has been revised to encourage the students to be exposed to the emerging area of IT i.e. Human Centered Multimedia and High Performance Computing.

DUGC/DPGC Members1) Mrs. Sowmya Kamath 2) Mr. Biju R Mohan 3) Mr. Dinesh Naik 4) Dr. Ananthanarayana V S 5) Dr. G. Ram Mohana Reddy 

Chairman - DUGC / DPGC / DPDC
Department of Information Technology
NITK - Surathkal, Srinivasnagar P. O.,
Mangalore - 575 025, INDIA

IT201 FUNDAMENTALS OF SIGNAL PROCESSING (3-1-0) 4 Credits PREREQ: MA101

Preamble: One of the fastest growing application areas of Computer Science/Information Technology is Human Centered Multimedia Computing that deals with the processing of multimedia signals: sound, images, and video. Multimedia places great demands on processing power, network bandwidth, storage capacity, I/O speed, and software design. In this course, students will learn how multimedia information is captured, represented/analyzed, processed, communicated and stored in computers. The specific topics we will cover include: physical properties of multimedia source information (sound, images), human perception of multimedia information, devices for information capture (microphones, cameras), digitization, compression, digital media representation (JPEG, MPEG), digital signal processing (frequency and time domain techniques), and network communication. By the end of this course, students should understand the problems and solutions facing multimedia systems development in the areas of user interfaces, information retrieval, data structures and algorithms.

Course Objectives:

- What are “real” world multimedia (sounds, images, video) signals and how we perceive them?
- How signals are represented and the tradeoffs among sampling, quantization, and file size.
- How mathematical tools: DFT, DCT and Wavelet Transforms are used for Multimedia analysis?
- How multimedia file sizes can be reduced by compression, and the tradeoffs among compression.
- What are the mathematical tools for understanding the basics of image morphology?
- What are the signal/image processing algorithms that remove noise and extracting features, etc?
- How these concepts are applied in Human Centered Multimedia applications and standards.

Course Outline: Fundamentals of Signals and Systems, Discrete Fourier Transforms: DFT, FFT Algorithms- DIT, DIF, Discrete Cosine Transforms, Wavelet Transforms; Applications to Speech, Audio, Image and Video Processing of Human Centered Multimedia Computing.

Sanjit K. Mitra, “Digital Signal Processing: A Computer Based approach”, Tata McGraw-Hill, 1998.

Ifeachor E C and Jervis B W, “Digital Signal Processing – A Practical Approach”, Pearson Education, 2002

Ben.Gold, Nelson.Morgan, “Speech and Audio Signal Processing”, John Wiley and Sons Inc., 2004.

Rafael C. Gonzalez & Richard E. Woods, “Digital Image Processing”, Pearson Education, 3rd Edition, 2008.

Milan Sonka, Vaclav Hlavac and Roger Boyle, “Image Processing, Analysis and Machine Vision”, Brooks Cole, Thompson learning, 3rd Edition, 2008.

Chokkappa
09/05/2014
Chairman - DUGC / DPGC / DPFC
Department of Information Technology
NITK - Coastal, Sakleshwara P. O.
Mangalore - 575 025, KARNATAKA

Introduction to Parallel Computer Architectures, Parallel Programming with OpenMP, Parallel Programming with MPI, Advanced concepts in MPI, Recent Advances in Parallel Programming techniques like Task, Parallelism using TBB, TL2, Cilk++ etc. and software transactional memory techniques. Advances programming on massively parallel processors like GPGPUs and APUs and introduction to compilers and tools on such machines.

J. Dongara, I. Foster, G. Fox, W. Cropp et al, "Sourcebook of Parallel Programming", Morgan Kaufmann.

Barbara Chapman, Gabriele Jost et.al, "Using OpenMP: Portable Shared Memory Parallel Programming", Scientific and Engineering Computation, MIT 2008.

B. Wilkinson and M. Allen, "Parallel Programming: Techniques and Applications", Prentice Hall.

S. Akhter and J. Roberts, "Multi-Core Programming-Performance through Multi-threading", Intel Press, 2006

David B. Kirk and Wen-mei W. Hwu, "Programming Massively Parallel Processors: A Hands-on Approach (Applications of GPU Computing Series)", Elsevier Press, 2010

Abreddy
09/05/2011
Chairman - DUGC / DPGC / DRPC
Department of Information Technology
NTK - Surathkal, Srinivasnagar P. O.,
Mangalore - 575 025, INDIA

A m e x u r e - VI

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

INTER-OFFICE COMMUNICATION (IOC)

Loc No. PHY/2011/022 Date: 19-01-2011

Priority-level	Initiator's Expectation
1. Urgent 2. Normal ✓	1. Approval ✓ 2. Decision 3. Action 4. Suggestion sought 5. Information sought 6. Information conveyed

From (Initiator)	Routed-thru	To (Respondent)	Copies to
The Prof. and Head, Department of Physics.		Dean (Academic)	

Subject: Agenda items for the BOS/Senate.

Reference(s) if any:

Note from the Initiator:

Please find enclosed here with the agenda item for the BOS / Senate. The DPGC resolution is also enclosed.


19/1/2011
Dr. (Mrs.) KASTURY V. BANGERA
Professor & Head
Department of Physics
National Institute of Technology Karnataka
Surathkal
Srinivasnagar - 575 025 (D.K.)

For the Respondent's use

PH 876-2011

Elective Paper for M.Sc Physics [PH 876]
General Theory of Relativity

Credits: (3-0-0)

Unit 1 Theory of Gravitation 5 Lectures

Review of the special theory of relativity and the Newtonian theory of gravitation. Distinction between Newtonian space and relativistic space. The conflict between Newtonian Theory of gravitation and special Relativity. Non-Euclidean space time. General Relativity and gravitation, desirable features of gravitational theory. Principle of equivalence and principle of covariance.

Unit 2 Tensor Analysis 15 Lectures

Transformation of co-ordinates, Summation convention, Symmetric and skew-symmetric tensors, contraction of tensor and quotient laws, Laws of transformation of contravariant, covariant and mixed tensors of different ranks, Cartesian tensor, Metric tensor, Algebra of tensors, associate tensors, Physical components of tensors
Christoffel symbols, covariant derivative of tensors, intrinsic derivative, covariant derivative of second order, Curvature tensor and its symmetric properties, Riemann Christoffel tensor, Ricci Theorem, Ricci tensor, Einstein tensor, Local inertial co-ordinate system, Bianchi identities, Contracted Bianchi identities

Unit 3 Geodesic and Field Equations 15 Lectures

Riemannian metric. The Levi-Civita tensor, Dual tensor. Parallel transport and Lie derivative. Geodesic: i) geodesic as a curve of unchanging direction ii) geodesic as the curve of shortest distance and iii) geodesic through variational principle. The first integral of geodesic and types of geodesics. Geodesic deviation and geodesic deviation equation. Einstein field equation and its Newtonian approximation, Energy momentum tensor of perfect fluid, Electromagnetic field, Einstein Maxwell equation

Unit 4 Crucial Tests of General Relativity. Schwarzschild Solution

10 Lectures

Planetary orbits, general relativistic Kepler problem, Advance of perihelion of Mercury, Bending of light rays in a gravitational field, gravitational red shift in spectral lines, Schwarzschild interior solution Spherical symmetry, Einstein field equations under spherical symmetry, Schwarzschild Space time, Isotopic coordinates, retarded time, Schwarzschild exterior solution and its isotropic form,

Text and Reference Books

Weinberg. S, Gravitation and Cosmology Wiley, 1972

Wald R. M, General Relativity, University of Chicago Press, 1984.

J V Narlikar, Lectures on General Relativity and Cosmology, McMillan, 1978

R Adler, M. Bazin and M Schiffer, Introduction to General Relativity, McGraw-Hill, 1975

The problems given in the Text and Reference books will form tutorial

Agk
19/11/2011

504

504 - 2011

Proceedings of the DPGC meeting held on 19.01.2011 at 12 noon at the Physics Department.

An additional elective with the course content submitted by Dr. Ajith K. M. was discussed in the DPGC meeting and it was resolved to recommend the same and forward it to BOS for consideration.

The following members were present

1. Prof. Kasturi .V. Bangera Kasturi
19/1/11
2. Prof. G. K. Shivakumar GKS
3. Prof. G. Umesh ABSENT
4. Dr. N. K. Udayashankar NK
19/1/11
5. Dr. (Mrs.)H. D. Shashikala H.D. Shashikala
19/01/11.
6. Dr. M. N. Satyanarayan MN
19/1/11
7. Dr. H.S. Nagaraja H-S Nagaraja
19/1/11
8. Dr. Ajith K.M. Ajith
19/1/11



भौतिकी विभाग
राष्ट्रीय प्रौद्योगिकी संस्थान कर्नाटक, सुरत्कल, मंगलूर - 575025
DEPARTMENT OF PHYSICS
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA , SURATHKAL,
MANGALORE - 575025

(PH876)

General Theory of Relativity

(3-0-0)3

Theory of Gravitation: Review of the special theory of relativity and the Newtonian theory of gravitation. Principle of equivalence and principle of covariance. Tensor calculus: covariant derivative of tensors, intrinsic derivative, covariant derivative of second order, Curvature tensor and its symmetric properties, Riemann Christoffel tensor. Geodesic and Field Equations : Parallel transport and Lie derivative. Geodesic: i) geodesic as a curve of unchanging direction ii) geodesic as the curve of shortest distance and iii) geodesic through variational principle. Crucial Tests of General Relativity, Schwarzschild Solution: Planetary orbits, general relativistic Kepler problem, Advance of perihelion of Mercury, Bending of light rays in a gravitational field.

Weinberg. S, Gravitation and Cosmology, 1972

Wald R.M., General Relativity, University of Chicago Press, 1984

J.V. Narlikar, Lectures on General Relativity and Cosmology, McMillan, 1978

R. Adler, M. Bazin and M. Schiffer, Introduction to General Relativity, McGraw-Hill, 1975

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
NITK - Surathkal

Ref: NITK / CSE/ BOS/ AGN/ 348/2011

Date: 09-05-2011

From

Dr. P. Santhi Thilagam
Head of the Department

To

The Dean (Academic)
NITK - Surathkal

Dear Sir

Sub: Agenda for BOS Meeting - reg.

Ref: Letter No. NITK/BOS-2011/DR dated 6th May 2011


It is observed that a student awarded 'FA' grade in the subject CO449 Major Project I in VII semester B.Tech (CSE), can register for CO499 Major Project II. Since Major Project I is not completed, it is not fair to carry out Major Project II. Besides, it is written under Major Project II that, "This work, started in VII semester and continues through VIII semester". Thus in order to avoid such situations, it seems necessary to put prerequisite of completion of Major Project I to take up Major Project II.


Proposed Resolution:

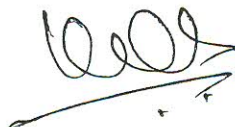
"Pre-requisite for CO499 in Major Project II should be CO449 Major Project - I completion for the B.Tech CSE".

Finally such things may be followed for all other departments.

Thank you

 - Mr. Annappa

 - Ms. B. R. Chandavarkar

 - Dr. K. C. Shel

Yours Sincerely


[P. Santhi Thilagam]

Dr. P. SANTHI THILAGAM

Head of the Department
Dept. of Computer Science and Engineering,
National Institute of Technology Karnataka
Surathkal, Srinivasnagar (P.O.)
Mangalore - 575025

Annexure-III

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL
INTER-OFFICE COMMUNICATION (IOC)

IOC No: 2/HSM/NITK/2010/645 Date: 17 January 2011

Priority - Level	Initiator's Expectation		
1) Urgent 2) Normal	1) Approval	2) Decision	3) Action
	4) Suggestion sought	5) Information sought	6) Information conveyed

From (Initiator)	Routed-Thru	To (Respondent)	Copies to
HOD, Dept. of HSM		Dean (AA)	


Subject: Request for i) Correction in the MBA Curriculum 2010

Note from the Initiator:

I am forwarding herewith a request of the DPGC to make certain corrections in the MBA curriculum. I request you to place the matter before the Senate and do the needful.

Thank you,

Yours truly,

 17/01/2011

K.B. Kiran
HOD, Dept. of HSM

Dr. K. B. KIRAN

HEAD OF THE DEPARTMENT

Department of Humanities, Social Sciences
and Management (HSM)
National Institute of Technology Karnataka
Surathkal, P.O. Srinivasnagar
Mangalore - 575 025.

DEPARTMENT OF HSM, NITK, SURATHKAL

MINUTES OF THE MEETING OF THE DPGC

Ref. No.2/HSM/NITK/2011/733

Date: 09 May 2011

Resolutions:

1. Changes in the course structure of MBA programme (Regulations specific to MBA Degree Programme)
The total course package for an MBA programme will typically consist of the following components:

Credit Requirements:

Category	Minimum Credits to be Earned for award of MBA Degree
Foundation Courses	22
Programme Core (Pc)	28
Advanced Courses	15
Elective Courses (Ele)	12
Seminar	3
Major Project (MP)	20
TOTAL	100

The DPGC after discussion recommends the above changes to credits offered for the programme for the above components, inclusion of one foundation course, five elective courses and Seminars, the semester-wise distribution of the courses, as well as the syllabi of the said courses for consideration and approval.

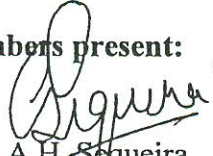
The minimum credit requirement for the MBA Degree remains One Hundred (100).


The major project carries 8 credits for First Phase and 12 credits for the Final phase during 4th Semester as recommended by DPGC.

It has been resolved to recommend the BOS to approve the above additions and changes.

(Enclosure as above)

Members present:


Prof. A.H. Sequeira
Member- DPGC


Dr. Shashikantha K.
Secretary – DPGC


Dr. K.B. Kiran
Chairman- DPGC
Dr. K. B. KIRAN
HEAD OF THE DEPARTMENT
Department of Humanities, Social Sciences
and Management (HSM)
National Institute of Technology Karnataka
Surathkal, P.O. Srinivasnagar
Mangalore - 575 025.

Sl. No.	Semester			
	I	II	III	IV
1.	MBA701	MBA722	MBA751	MBA899
2.	MBA702	MBA723	MBA752	
3.	MBA703	MBA724	MBA753	
4.	MBA704	MBA725	MA754	
5.	MBA705	MBA726	MBA755	
6.	MBA706	MBA727	<i>Elective Spec. II</i>	
7.	MBA707	<i>Elective Spec. I</i>	<i>Elective General II</i>	
8.	MA711	<i>Elective General I</i>	MBA898	
9.	MBA721	MBA897	--	
10.	MBA896	--	--	

Credit Requirements

Category	Minimum Credits to be Earned for award of MBA Degree
Foundation Courses	22
Programme Core (Pc)	28
Advanced Courses	15
Elective Courses (Ele)	12
Major Project (MP)	20
Mandatory Learning Courses (MLC)	03
TOTAL	100

I Semester

MBA701	Principles and Practices of Management	(3-0-0) 3
MBA702	Organizational Behaviour	(3-0-0) 3
MBA703	Accounting	(3-0-0) 3
MBA704	Managerial Economics	(3-0-0) 3
MBA705	Business Law	(3-0-0) 3
MBA706	Managerial Communication	(1-0-1) 2
MBA707	Computer Applications for Management	(1-0-2) 2
MA 711	Statistics for Management	(3-0-0) 3
MBA721	Marketing Management	(3-1-0) 4
MBA896	Seminar I	1
		<hr/>
		27 Credits

II Semester

MBA722	Management Information Systems	(3-1-0) 4
MBA723	Financial Management	(3-1-0) 4
MBA724	Production & Operations Management	(3-1-0) 4
MBA725	Human Resource Management	(3-1-0) 4
MBA726	Economic Environment & Policy	(3-1-0) 4
MBA727	Research Methodology	(3-1-0) 4
	Elective Specialization I	(3-0-0) 3
	Elective General I	(3-0-0) 3
MBA897	Seminar II	1
		<hr/>
		31 Credits

III Semester

MBA751	Strategic Management	(3-0-0) 3
MBA752	Total Quality Management	(3-0-0) 3
MBA753	International Business Management	(3-0-0) 3
MA 754	Operation Research	(3-0-0) 3
MBA755	Entrepreneurship	(3-0-0) 3
	Elective Specialization II	(3-0-0) 3
	Elective General II	(3-0-0) 3
MBA898	Internship Seminar	1
		<hr/>
		22 Credits

IV Semester

MBA899	Major Project	20 Credits
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Elective Specialization I and II must be from the same group. Elective General I and Elective General II may be one each from any groups other than Specialization.

Foundation Courses:

MBA701	Principles & Practices of Management	(3-0-0)	3
MBA702	Organization Behavior	(3-0-0)	3
MBA703	Accounting	(3-0-0)	3
MBA704	Managerial Economics	(3-0-0)	3
MBA705	Business Law and Ethics	(3-0-0)	3
MBA706	Managerial Communication	(1-0-1)	2
MBA707	Computer Application for Management	(1-0-2)	2
MA711	Statistics for Management	(3-0-0)	3

Advanced Courses:

MBA751	Strategic Management	(3-0-0)	3
MBA752	Total Quality Management	(3-0-0)	3
MBA753	International Business Management	(3-0-0)	3
MBA754	Operation Research	(3-0-0)	3
MBA755	Entrepreneurship	(3-0-0)	3

Elective Courses (Ele):**Human Resource Management (Group – I)**

MBA801	Organization Design & Development	(3-0-0)	3
MBA802	Industrial Relations	(3-0-0)	3
MBA803	Training and Development	(3-0-0)	3
MBA804	Knowledge Management	(3-0-0)	3
MBA805	International Human Resource Management	(3-0-0)	3
MBA831	Industrial Psychology	(3-0-0)	3
MBA832	Corporate Social Responsibility	(3-0-0)	3

Finance (Group – III)

MBA813	Banking	(3-0-0)	3
MBA814	Insurance & Risk Management	(3-0-0)	3
MBA815	International Financial Management	(3-0-0)	3
MBA816	E-Commerce and E-Business	(3-0-0)	3
MBA817	Security Analysis & Portfolio Management	(3-0-0)	3
MBA818	Managerial Accounting	(3-0-0)	3
MBA819	Financial Institutions	(3-0-0)	3
MBA820	Taxation	(3-0-0)	3
MBA829	Mergers, Acquisition and Corporate Restructuring	(3-0-0)	3

Mandatory Learning Courses (MLC)

MBA896	Seminar 1		1
MBA897	Seminar 2		1
MBA898	Internship Seminar		1

Major Project (MP)

MBA899	Major Project		20
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Programme Core (Pc):

MBA721	Marketing Management	(3-1-0)	4
MBA722	Management Information Systems	(3-1-0)	4
MBA723	Financial Management	(3-1-0)	4
MBA724	Production and Operations Management	(3-1-0)	4
MBA725	Human resources Management	(3-1-0)	4
MBA726	Economic Environment & Policy	(3-1-0)	4
MBA727	Research Methodology	(3-1-0)	4

Marketing (Group – II)

MBA806	Market Research & Consumer Behaviour	(3-0-0)	3
MBA807	Advertising and Sales Promotion	(3-0-0)	3
MBA808	Services Marketing	(3-0-0)	3
MBA809	Retail Marketing	(3-0-0)	3
MBA810	Rural Marketing	(3-0-0)	3
MBA811	Industrial Marketing	(3-0-0)	3
MBA812	International Marketing	(3-0-0)	3
MBA828	Brand Management	(3-0-0)	3

Operations (Group – IV)

MBA821	Enterprise Resource Planning	(3-0-0)	3
MBA822	Project Management	(3-0-0)	3
MBA823	Technology Management	(3-0-0)	3
MBA824	Environment Industry Linkage	(3-0-0)	3
MBA825	Professional Ethics	(3-0-0)	3
MBA826	Hospitality Management	(3-0-0)	3
MBA827	Health Care Management	(3-0-0)	3
MBA830	Supply Chain Management	(3-0-0)	3

Annexure-18

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL
INTER-OFFICE COMMUNICATION (IOC)

IOC No: 1/HSM/NITK/2011/728

Date: 05-05-2011

Priority – Level
1) Urgent 2) Normal

Initiator's Expectation		
1) Approval	2) Decision	3) Action
4) Suggestion sought	5) Information sought	6) Information conveyed

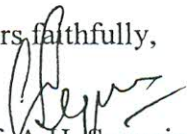
From (Initiator)	Routed-Thru	To (Respondent)	Copies to
The HOD Dept. of HSM NITK, Surathkal		The Dean (Academic) NITK, Surathkal	The Associate Dean Academic(PG)

Subject: Co-opting faculty member from outside the Institute as member of RPAC
Ref.: Regulation No. 9.3, Specific to PhD Degree Programme


The DRPC would like to bring to your notice that Ms. Ambika Kamath (HM09P01) is a PhD student in Comparative Literature in the Dept. of HSM. She is about to finish her fourth semester and the RPAC has to be constituted soon. There is no precedent of literary research in the Institute in terms of a PhD scholar. Apart from her guide, Dr. Shashikantha Koudur, the Institute does not have a scholar in literature, who is trained in literary research methodology. Therefore, as a special case, an expert from outside the Institute may be co-opted as a member of the RPAC being constituted for Ms. Ambika Kamath. The DRPC is of the opinion that Dr. Tungesh G.M., Associate Professor, Department of Humanities and Social Sciences, Manipal Institute of Technology, Manipal may be invited to be the member of RPAC. A copy of his CV is enclosed herewith. Please approve this as a special case and oblige.

Thank you,

Yours faithfully,


Prof. A.H. Sequeira
Chairman, DRPC

 5/5/2011
Dr. K.B. Kiran
HOD and Secretary, DRPC

 5/5/2011
Dr. Shashikantha K.
Member, DRPC