# DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY LUCKNOW



## Study & Evaluation Scheme with Syllabus

### For

### B.Tech. Second Year

### (Computer Science and Engineering, Computer Engg. & Information Technology)

### On

### Choice Based Credit System

# (Effective from the Session: 2017-18)

## 2<sup>nd</sup> Year III-SEMESTER

| S. No. | Subject Code | Subject Name | L-T-P | ESE Marks | Sessional CT | Sessional TA | Total | Credit |
|---|---|---|---|---|---|---|---|---|
| 1. | ROE030 to 039/ RAS301 | Science Based Open Elective/ Mathematics-III | 3-1-0 | 70 | 20 | 10 | 100 | 4 |
| 2. | RVE301/ RAS302 | Universal Human Values & Professional Ethics/ Environment & Ecology | 3-0-0 | 70 | 20 | 10 | 100 | 3 |
| 3. | REE305 | Network Analysis and Synthesis | 3-0-0 | 70 | 20 | 10 | 100 | 3 |
| 4. | REC301 | Digital Logic Design | 3-0-0 | 70 | 20 | 10 | 100 | 3 |
| 5. | REC302 | Electronic Devices and Circuits | 3-1-0 | 70 | 20 | 10 | 100 | 4 |
| 6. | REC303 | Signals & Systems | 3-0-0 | 70 | 20 | 10 | 100 | 3 |
| 7. | REC351 | Digital Logic Design Lab | 0-0-2 | 50 | 30 | 20 | 100 | 1 |
| 8. | REC352 | Electronic Devices and Circuits Lab | 0-0-2 | 50 | 30 | 20 | 100 | 1 |
| 9. | REC353 | Signals & Systems Lab | 0-0-2 | 50 | 30 | 20 | 100 | 1 |
| 10. | REC354 | Electronics Workshop & PCB Design Lab | 0-0-2 | 50 | 30 | 20 | 100 | 1 |
| 11. | RME101* | Elements of Mechanical Engineering* | 3-1-0 | 70 | 20 | 10 | 100* | -- |
| 12. | RCE151* | Computer Aided Engineering Graphics* | 0-0-3 | 50 | 30 | 20 | 100* | -- |
| | | Total | | | | | 1000 | 24 |

CT: Class Test        TA: Teacher Assessment        L/T/P: Lecture/ Tutorial/ Practical

**\*B.Tech. II<sup>nd</sup> year lateral entry students belonging to B.Sc. Stream, shall clear the subjects RCE151/RCE251 and RME101/201 of the first year Engineering Programme along with the second year subjects.**

**Science Based Open Electives:**
a. ROE030/ROE040 Manufacturing Process
b. ROE031/ROE041 Introduction to soft computing
c. ROE032/ROE042 Nano Science
d. ROE033/ROE043 Laser System and Application
e. ROE034/ROE044 Space Science
f. ROE035/ROE045 Polymer Science & Technology
g. ROE036/ROE046 Nuclear Science
h. ROE037/ROE047 Material Science
i. ROE038/ROE048 Discrete Mathematics
j. ROE039/ROE049 Applied Linear Algebra

Director
Pranveer Singh Institute of Technology
Kanpur Agra Delhi National Highway
Bhauti, Kanpur (U.P.)- 209305

2

## 2<sup>nd</sup> Year IV-SEMESTER

| S. No. | Subject Code | Subject Name | L-T-P | ESE Marks | Sessional CT | Sessional TA | Total | Credit |
|---|---|---|---|---|---|---|---|---|
| 1. | RAS401/ ROE040 to 049 | Mathematics-III/ Science Based Open Elective | 3-1-0 | 70 | 20 | 10 | 100 | 4 |
| 2. | RAS402/ RVE401 | Environment & Ecology/ Universal Human Values & Professional Ethics | 3-0-0 | 70 | 20 | 10 | 100 | 3 |
| 3. | REC401 | Microprocessors & Microcontrollers | 3-0-0 | 70 | 20 | 10 | 100 | 3 |
| 4. | REC402 | Electromagnetic Field Theory | 3-1-0 | 70 | 20 | 10 | 100 | 4 |
| 5. | REC403 | Electronic Measurement & Instrumentation | 3-0-0 | 70 | 20 | 10 | 100 | 3 |
| 6. | RCS406 | Data Structure & Algorithms | 3-0-0 | 70 | 20 | 10 | 100 | 3 |
| 7. | REC451 | Microprocessors & Microcontrollers Lab | 0-0-2 | 50 | 30 | 20 | 100 | 1 |
| 8. | REC452 | Advanced Electronics System Lab | 0-0-2 | 50 | 30 | 20 | 100 | 1 |
| 9. | REC453 | Electronic Measurement & Instrumentation Lab | 0-0-2 | 50 | 30 | 20 | 100 | 1 |
| 10. | RCS456 | Data Structure & Algorithms Lab | 0-0-2 | 50 | 30 | 20 | 100 | 1 |
| 11. | RME201* | Elements of Mechanical Engineering* | 3-1-0 | 70 | 20 | 10 | 100* | -- |
| 12. | RCE251* | Computer Aided Engineering Graphics* | 0-0-3 | 50 | 30 | 20 | 100* | -- |
| | | Total | | | | | 1000 | 24 |

CT: Class Test          TA: Teacher Assessment          L/T/P: Lecture/ Tutorial/ Practical

**\*B.Tech. II<sup>nd</sup> year lateral entry students belonging to B.Sc. Stream, shall clear the subjects RCE151/RCE251 and RME101/201 of the first year Engineering Programme along with the second year subjects.**

**Science Based Open Electives:**
a. ROE030/ROE040 Manufacturing Process
b. ROE031/ROE041 Introduction to soft computing
c. ROE032/ROE042 Nano Science
d. ROE033/ROE043 Laser System and Application
e. ROE034/ROE044 Space Science
f. ROE035/ROE045 Polymer Science & Technology
g. ROE036/ROE046 Nuclear Science
h. ROE037/ROE047 Material Science
i. ROE038/ROE048 Discrete Mathematics
j. ROE039/ROE049 Applied Linear Algebra

Director
Pranveer Singh Institute of Technology
Kanpur Agra Delhi National Highway
Bhauti, Kanpur (U.P.)- 209305

| ROE 080 | Human Values in Bauddha and Jain Darshan | L | T | P | C |
|---------|-------------------------------------------|---|---|---|---|
|         |                                           | 3 | 0 | 0 | 3 |
| Version No.: | 2.0 (updated as on June 12th 2019) | | | | |
| Prerequisite: | RVE 301/401- Universal Human Values and Professional Ethics<br>Desirable- 10 Day Vipassana Meditation course by Shri S. N. Goenka | | | | |

**Objectives:**
1. To help students understand the basic principles of Bauddha and Jain Darshan
2. To help students understand the existential realities including the human existence through Bauddha and Jain Darshan
3. To help them to see the participation of human beings in the nature/ existential realities (i.e. human values) and therefore the human conduct through each one of them
4. To help students apply this understanding to make their living better at different levels- individual, family, society and nature
5. To facilitate the students in applying this understanding in their profession and lead an ethical life.

**Course Outcome:** On completion of this course, the students will be able to
1. Understand the basic concepts of Bauddha and Jain Darshan
2. Understand the human being, the needs and activities of human being through Bauddha and Jain Darshan
3. Understand the whole existence
4. Understand the role of human being in the entire existence, thus getting clarity about values at all levels of living and human conduct
5. Understand the foundation of human society and human tradition.

**Catalogue Description:** Bauddha and Jain Darshan form a part of the philosophy of Indian tradition. This course outlines the basic concepts and principles of these two philosophies and provides scope for further reading of the philosophies, so as to gain clarity about the human being, the existence and human participation i.e. human values expressing itself in human conduct.
It is to be kept in mind that Darshan means realisation which calls for developing the capacity to see the reality in oneself directly. So, any study of Darshan shall help develop this capacity in the students through proper steps of practices and shall not just provide the information.

**Module I: Introduction to Bauddha and Jain Darshan and their Basics**
Need to study Bauddha and Jain Darshan; the origin of the thsee philosophies, their basic principles and scope for further reading.

**Module II: Basic Principles of Bauddha Darshan**
law of impermanence (changability); four noble truths; eightfold path; law of cause- action (*pratitya-samutpaad*)
Definition of some salient words of Buddha Darshan – *nirvana, dhamma, tri- ratna(Buddha, Dharma and Sangh), pragya, karma, parmi, ashta-kalap, trishna, shad-ayatan, samvedana, vipassana, anitya, maitri, brham-vihaar, tathagata, arahant.*

**Module III: Purpose and Program for a Human Being based on Bauddha Darshan**
The purpose and program of a human being living on the basis of it, clarity and practice of human values and human conduct, the natural outcome of such a program on society, nature and tradition.
Purpose-freedom from suffering, *nirvana*; root of suffering- *vikaar – raga, dvesha* and *moha*, Progam – various steps of meditation for attaining knowledge; *shamath and vipassana; sheel-samadhi-pragya; practice of equanimity (samatva).* eightfold path(Ashtang Marg); combination of understanding and practice.

Director
Pranveer Singh Institute of Technology
Kanpur Agra Delhi National Highway
Bhauti, Kanpur (U.P.)- 209305

## Module IV: Basic Principles of Jain Darshan

Basic realities – description of nine elements in existence (*jeev, ajeev, bandh, punya, paap, aashrav, samvar, nirjara, moksha*), 6 dravya of lok – *dharma, adhrma, akash, kaal, pudgal, jeev*; tri-lakshan, various types of *pragya*, various stages of realisation; *samyak-gyan, samyak-darshan, samyak-charitra, syadvaad, anekantavaad, naya- nishchaya and vyavahar, karma-phal siddhanta*

Definition of some salient words of Jain Darshan –*arhant, jin, tirthankara, panch-parameshthi, atma, pramaan, kaal, pudgal, paramanu, kashay, leshya.*

## Module V: Purpose and Program for a Human Being based on Jain Darshan

The purpose and program of a human being living on the basis of it, clarity and practice of human values and human conduct, the natural outcome of such a program on society, nature and tradition, possibility of finding solutions to present day problems in the light of it.

Purpose (goal) - *moksha*, Program- following *mahavrat, anuvrat, 10 lakshan dharma; samyak darshan-gyan-charitra.* Commonality with Bauddha Darshan

## Text Books:
1. Chattejee, S.G. and Datta, D.M., "*An Introduction to Indian Philosophy*", University of Calcutta Press, 1960.

## References:
1. "*Dhammapad*", Vipassana Research Institute, 2001.
2. Drukpa, G., "*Musings from the Heart*", Drukpa Publications Private Ltd, 2018.
3. Jyot, "*Ek cheez milegi Wonderful*", A Film Directed by Jyot Foundation, 2013.
4. Goenka, S.N., "The Discourse Summaries", Vipassana Research Institute, 1987.
5. Madhavacharya, "*Sarva-darshan Samgraha*", Chaukhambha Vidya Bhavan, Varanasi, 1984.
6. Varni, J., "*Samansuttam*", Sarva Seva Sangh Prakashan, Varanasi, 7th Edition, 2010.
7. https://www.youtube.com/watch?v=cz7QHNvNFfA&list=PLPJVlVRVmhc4Z01fD57jbzycm9I6W054x (English)
8. https://www.youtube.com/watch?v=r5bud1ybBDc&list=PLY9hraHvoLQLCkl7Z2DWKMgRAWU77bKFy (Hindi)

**Mode of Evaluation:** Assignment/ Seminar/Continuous Assessment Test/Semester End Exam

Director
Pranveer Singh Institute of Technology
Kanpur Agra Delhi National Highway
Bhauti, Kanpur (U.P.)- 209305

| ROE 070 | Human Values in Sankhya, Yoga and Vedanta Darshan | L | T | P | C |
|---------|---------------------------------------------------|---|---|---|---|
|         |                                                   | 3 | 0 | 0 | 3 |

| Version No.: | 2.0 (updated as on June 12 '19) |
|--------------|----------------------------------|
| Prerequisite: | KVE 301/401- Universal Human Values and Professional Ethics |

**Objectives:**
1. To help students understand the basic principles of Sankhya, Yoga and Vedanta Darshan
2. To help students understand the existential realities including the human existence through Sankhya, Yoga and Vedanta Darshan
3. To help them to see the participation of human beings in the nature/ existential realities (i.e. human values) and therefore the human conduct through each one of them
4. To help students apply this understanding to make their living better at different levels- individual, family, society and nature
5. To facilitate the students in applying this understanding in their profession and lead an ethical life

**Course Outcome:** On completion of this course, the students will be able to
1. Understand the basic concepts of Sankhya, Yoga and Vedanta Darshan.
2. Understand the human being, the needs and activities of human being through Sankhya, Yoga and Vedanta Darshan.
3. Understand the whole existence
4. Understand the role of human being in the entire existence, thus getting clarity about values at all levels of living and human conduct
5. Understand the foundation of human society and human tradition.

**Catalogue Description:** Sankhya, Yoga and Vedanta Darshan form a part of the philosophy of Indian tradition. This course outlines the basic concepts and principles of these three philosophies and provides scope for further reading of the philosophies, so as to gain clarity about the human being, the existence and human participation i.e. human values expressing itself in human conduct.
It is to be kept in mind that Darshan means realisation which calls for developing the capacity to see the reality in oneself directly. So, any study of Darshan shall help develop this capacity in the students through proper steps of practices and shall not just provide the information.

**Module I :Introduction to Sankhya, Yoga and Vedanta Darshan and their Basics**
Need to study Sankhya, Yoga and Vedanta Darshan; the origin of the three philosophies, their basic principles and scope for further reading.

**Module II: Sankhya Darshan**
Sankhya Darshan- the *nature* of *Purush* and *Prakriti*, 8 types of *prakriti* (*pradhan, mahattatva ahankar and* five *tanmatras*- sound, touch, form, taste and smell) and their 16 evolutes (*vicar*), *pramana* (*pratyaksha, anumana and agama*), bondage and salvation (liberation), the principle of *satkaryavad*, sense organs, work organs, *trigunatmak prakriti*

**Module III: YogaDarshan**
Yoga Darshan- the steps of *Ashtanga yoga* (*yama, niyama, aasana, pranayama, pratyahara dharana, dhyan and samadhi*) and the challenges in following them, afflictions (*klesha*)- *avidya asmita, raga, dvesha, abhinivesh*, different types of *vritti* (*pramana, viparyaya, vikalp, nidra, smriti*) the process of *nirodha* of *vritti*; *maitri, karuna, mudita, upeksha*; description of *yama, niyama aasana* and *pranayaama*; *kriyayoga –tapa, swadhyaya* and *ishwar-pranidhana*, different steps of *samadhi*, different types of *sanyama, vivekakhyati, pragya*.

Director
Pranveer Singh Institute of Technology
Kanpur Agra Delhi National Highway
Bhauti, Kanpur (U.P.)- 209305

**Module IV :Vedanta Darshan**

Vedanta Darshan- *Nature* of *Brahma* and *Prakriti*, Methods of *Upasana*; *adhyasa* and *sanskar* *nature* of Atma, description of existence, principle of *karma-phala*, description of *pancha kosha* different *nature* of *paramatma/brahma, Ishwar, Four qualifications (Sadhan-chatushtay)*.

**Module V : Purpose and Program for a Human Being based on the Three Darshan**

The purpose and program of a human being living on the basis of the three darshanas, clarity and practice of human values and human conduct, the natural outcome of such a program on society nature and tradition. possibility of finding solutions to present day problems in the light of it.

**Text Books:**

1. Chattejee, S.G. and Datta, D.M., "*An Introduction to Indian Philosophy*", University of Calcutta Press, 1960.

**References:**

1. Goendaka, J., "*Shreemad Bhagwat Geeta*", Geeta Press, Gorakhpur, 73rd reprint, 2015.
2. Krishna, I., "*The Sankhya Karika*", Bharatiya Vidya Prakashan, 4th edition, 2010.
3. Madhavacharya, "*Sarva-darshan Samgraha*", Chaukhambha Vidya Bhavan, Varanasi, 1984.
4. Maharaj, O. "*Patanjal Yog Pradeep*", Geeta press, Gorakhpur, 30th reprint, 2009.
5. Muller, F.M. "*The Six Systems of Indian Philosophy*", Longmans Green and Co. Publication, London, 1928.
6. Radhakrishnan, S., "*Indian Philosophy (Volume* 1 and 2)", Oxford University Press, 2nd edition, 1996.
7. Shankaracharya, "*Vivek Choodamani*", Geeta Press, Gorakhpur, 48th Reprint, 2018.
8. Sivananda, S., "*Raj Yoga*", The Divine Life Society, Rishikesh, 7th edition, 2016.
9. Vachaspati, M., "*Sankhya Tatva Kaumudi*", Motilal Banarasi Das Publication, Varanasi 1921.

**Mode of Evaluation:** Assignment/ Seminar/Continuous Assessment Test/Semester End Exam

**Director**
Pranveer Singh Institute of Technology
Kanpur Agra Delhi National Highway
Bhauti, Kanpur (U.P.)- 209305