

Savitribai Phule Pune University
Second Year of Computer Engineering (2015 Course)
210250: Audit Course 1

In addition to credits, it is recommended that there should be audit course in preferably in each semester from second year to supplement knowledge and skills. A student will be awarded the bachelor's degree if he/she earns 190 credits and clears all the audit courses specified in the syllabus. The student will be awarded grade as AP on successful completion of audit course.

The student may opt for one of the audit courses per semester, starting from second year first semester. Though not mandatory, such a selection of the audit courses helps the learner to explore the subject of interest in greater details resulting in achieving the very objective of audit course's inclusion. List of options offered is provided. Each student has to choose one audit course from the list per semester. Evaluation of audit course will be done at institute level itself. Method of conduction and method of assessment for audit courses are suggested.

Criteria:

The student registered for audit course shall be awarded the grade AP (Audit Course Pass) and shall be included such AP grade in the Semester grade report for that course, provided student has the minimum attendance as prescribed by the Savitribai Phule Pune University and satisfactory in-semester performance and secured a passing grade in that audit course. No grade points are associated with this 'AP' grade and performance in these courses is not accounted in the calculation of the performance indices SGPA and CGPA. Evaluation of audit course will be done at institute level itself. (Ref- http://www.unipune.ac.in/Syllabi_PDF/revise-2015/engineering/UG_RULE_REGULATIONS_FOR_CREDIT_SYSTEM-2015_18June.pdf)

Guidelines for Conduction and Assessment (Any one or more of following but not limited to)

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| <ul style="list-style-type: none"> • Lectures/ Guest Lectures • Visits (Social/Field) and reports • Demonstrations | <ul style="list-style-type: none"> • Surveys • Mini Project • Hands on experience on specific focused topic |
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Guidelines for Assessment (Any one or more of following but not limited to)

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| <ul style="list-style-type: none"> • Written Test • Demonstrations/ Practical Test • Presentations | <ul style="list-style-type: none"> • IPR/Publication • Report |
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Audit Course 1 Options

Course Code	Audit Course Title
AC1-I	Road Safety
AC1-II	Humanities and Social Sciences
AC1-III	Environmental Studies
AC1-IV	Smart Cities
AC1-V	Foreign Language (one of Japanese/Spanish/French/German). <u>Course contents for Japanese (Module 1) are provided. For other languages institute may design suitably.</u>

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AC1-I: Road Safety

Road transport remains the least safe mode of transport, with road accidents representing the main cause of death of people. The boom in the vehicle population without adequate road infrastructure, poor attention to driver training and unsatisfactory regulation has been responsible for increase in the number of accidents. India's vehicle population is negligible as compared to the World statistics; but the comparable proportion for accidents is substantially large.

The need for stricter enforcement of law to ensure greater safety on roads and an environment-friendly road transport operation is of paramount importance. Safety and security are growing concerns for businesses, governments and the traveling public around the world, as also in India. It is, therefore, essential to take new initiatives in raising awareness, skill and knowledge of students as one of the ibid stake holders who are expected to follow the rules and policies of the government in order to facilitate safety of individual and safe mobility of others.

Course Contents:

1. Existing Road Transport Scenario
2. Accident Causes & Remedies
3. Road Accident Investigation & Investigation Methods
4. Vehicle Technology – CMVR & Road Safety
5. Regulatory / Legislative Provisions for Improving Road Safety
6. Behavioral Training for Drivers for Improving Road Safety
7. Road Safety Education
8. Road Engineering Measures for Improving Road Safety

References:

1. –Road Accidents in India Issues & Dimensions” , Ministry of Road Transport & Highways Government of India (www.unescap.org/sites/default/files/2.12.India_.pdf)
2. –Road Safety in India- Insights and analysis”, http://indiatransportportal.com/wp-content/uploads/2012/11/Road_safety_2012.pdf
3. Road User's Handbook, ROADS & MARITIME PUBLICATIONS
4. –Improving Road Safety in Developing Countries”, The national Academic Press

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AC1-II: Humanities and Social Sciences

Objective of Humanities and Social Science (HSS) is to produce well-rounded engineers, not only having good technological skills but also with the ability to interact with different organs of an organization.

HSS is concerned with society and the relationships among individuals within a society. It in turn has many branches, each of which is considered a "social science". The main social sciences include economics, political science, human geography, demography and sociology. In a wider sense, social science also includes some fields in the humanities such as anthropology, archaeology, psychology, history, law and linguistics.

Course Objectives:

- Human and social development;
- Contemporary national and international affairs;
- Emergence of Indian society and Economics

Course Outcomes:

On completion of the course, student will be able to–

- Making engineering and technology students aware of the various issues concerning man and society.
- These issues will help to sensitize students to be broader towards the social, cultural, economic and human issues, involved in social changes
- Able to understand the nature of the individual and the relationship between the self and the community
- Understanding major ideas, values, beliefs, and experiences that have shaped human history and cultures

Course Contents

1. **Indian Society** : Structure of Indian Society, Indian Social Demography– Social and Cultural, Differentiations: caste, class, gender and tribe; Institutions of marriage, family and kinship- Secularization –Social Movements and Regionalism- Panchayatraj Institutions; Indian constitution; Affirmative Action Programme of the Government- various reservations and commissions.
2. **Social Development**: Scientific approach to the study of human beings. Evolution of human kind, social change and evolution. Industrial revolution. National policy on education, health and health care and human development.

3. **Sectoral Development: Agriculture:** Technology changes, Green revolutions, Employment Rural & Urban, Government Schemes. Industrial Development: Strategies, Public & Private Sectors, Categories, infrastructure, transport & communication, Consumer Awareness.
4. **Environment & Ecology:** Ecosystems: Structure, Working, components. Pollution: Water & Air Pollution, Global Warming, Control Strategies, International Treaties. Energy Sources: Renewable & Non Renewable, Hydro power, Biomass, Ocean, Geothermal & Tidal. Global Environmental Issues: Population Growth, Soil Degradation, Loss of Biodiversity.

References:

1. Krugman, –International Economics”, Pearson Education, ISBN-13:000-01334-23646
2. Prakash, –The Indian Economy”, Pearson Education, ISBN-8131758931
3. Thursen Gerald, –Engineering Economics”, Prentice Hall, ISBN-10:0138221227
4. C.S. Rao, –Environmental Pollution Control Engineering”, New Age International Pvt. Ltd, ISBN-812241835X
5. Rangarajan, –Environmental Issues in India, Pearson Education”, ISBN-10:8131708101
6. University of Delhi, –The Individual & Society”, Pearson Education. ISBN-8131704173
7. Wikipedia.org / wiki /social studies.
8. M. N. Srinivas, –Social change in modern India, 1991”, Orient Longman, ISBN-10:812500422X
9. David Mandelbaum, –Society in India”, 1990, Popular, ISBN-10:8171540139
10. David Newman, –Exploring the architecture of everyday life”, Pine Forge Press, 7th edition, ISBN-10:1452275947

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AC1-III: Environmental Studies

Environmental studies are the field that examines this relationship between people and the environment. An environmental study is an interdisciplinary subject examining the interplay between the social, legal, management, and scientific aspects of environmental issues.

Course Objectives:

- Understanding the importance of ecological balance for sustainable development.
- Understanding the impacts of developmental activities and mitigation measures.
- Understand and realize the multi-disciplinary nature of the environment, its components, and inter-relationship between man and environment
- Understand the relevance and importance of the natural resources in the sustenance of life on earth and living standard

Course Outcomes:

On completion of the course, student will be able to–

- Comprehend the importance of ecosystem and biodiversity
- To correlate the human population growth and its trend to the environmental degradation and develop the awareness about his/her role towards environmental protection and prevention
- Identify different types of environmental pollution and control measures
- To correlate the exploitation and utilization of conventional and non-conventional resources

Course Contents:

1. **Natural Resources:** Introduction, Renewable and non-renewable, Forest, water, mineral, food, energy and land resources, Individual and conservation of resources, Equitable use of resources.
2. **Ecosystems:** Concept, Structure, Function, Energy flow, Ecological succession, Forest, grassland, desert and aquatic ecosystems - Introduction, characteristic features, structure and function.
3. **Biodiversity:** Genetic, Species and ecological diversity, Biogeographical classification of India, Value and hot spots, Biodiversity at global, national and local levels, India as mega-biodiversity nation, Threats to biodiversity, Endangered and endemic species of India, Conservation of Biodiversity, Endangered and endemic species, Conservation of biodiversity.
4. **Pollution:** Definition, Causes, effects and control measures of the pollution – Air, soil, Noise, Water, Marine and Thermal and Nuclear Pollution, Solid waste management, Role of Individual in Prevention of Pollution, Pollution case studies, Disaster management

References:

1. Bharucha, E., –Fextbook of Environmental Studies”, Universities Press (2005), ISBN-10:8173715408
2. Mahua Basu, —Environmental Studies”, Cambridge University Press, ISBN-978-1-107-5317-3

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AC1-IV: Smart Cities

We breathe in a world defined by urbanization and digital ubiquity, where mobile broadband connections outnumber fixed ones, machines dominate a new "internet of things," and more people live in cities than in the countryside. This course enables us to take a broad historical look at the forces that have shaped the planning and design of cities and information technologies from the rise of the great industrial cities of the nineteenth century to the present. This course considers the motivations, aspirations, and shortcomings of them all while offering a new civics to guide our efforts as we build the future together, one click at a time.

Course Objectives:

- To identify urban problems
- To study Effective and feasible ways to coordinate urban technologies.
- To study models and methods for effective implementation of Smart Cities.
- To study new technologies for Communication and Dissemination.
- To study new forms of Urban Governance and Organization.

Course Outcomes:

On completion of the course, learner will be able to–

- Better understanding of the dynamic behavior of the urban system by going beyond the physical appearance and by focusing on representations, properties and impact factors
- Exploration of the city as the most complex human-made organism with a metabolism that can be modeled in terms of stocks and flows
- Knowledge about data-informed approaches for the development of the future city, based on crowd sourcing and sensing
- Knowledge about the latest research results in for the development and management of future cities
- Understanding how citizens can benefit from data-informed design to develop smart and responsive cities

Course Contents:

Urbanization and Ubiquity - The slow emergence of learning cities in an urbanizing world
Cities as collective learners, what do we know?- Framing a view -A gamut of learning types -
Secrets of knowing and accelerating change - Why some cities learn and others do not.

References:

1. Anthony M. Townsend, W. W. Norton & Company –Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia”, ISBN: 0393082873, 9780393082876.
2. Tim Campbell, Routledge –Beyond Smart Cities: How Cities Network, Learn and Innovate”, Routledge, ISBN: 9781849714266.
3. Stan Geertman, Joseph Ferreira, Jr. Robert Goodspeed, John Stillwell, –Planning Support System ms and Smart Cities”, Lecture notes in Geo information and Cartography, Springer.

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AC1-V: Foreign Language- Japanese (Module 1)

About course:

With changing times, the competitiveness has gotten into the nerves and 'Being the Best' at all times is only the proof of it. Nonetheless, 'being the best' differs significantly from 'Communicating the best'. The best can merely be communicated whilst using the best suited Language!

Japanese is the new trend of 21st century. Not only youngsters but even the professionals seek value in it. It is the engineer's companion in current times with an assertion of a thriving future. Pune has indisputably grown to become a major center of Japanese Education in India while increasing the precedence for Japanese connoisseurs.

Japanese certainly serves a great platform to unlock a notoriously tough market & find a booming career. While the companies prefer candidates having the knowledge of the language, it can additionally help connect better with the native people thus prospering in their professional journey. Learning Japanese gives an extra edge to the 'resume' since the recruiters consciously make note of the fact it requires real perseverance and self-discipline to tackle one of the most complex languages.

It would be easy for all time to quit the impossible; however it takes immense courage to reiterate the desired outcomes, recognize that improvement is an ongoing process and ultimately soldier on it. The need of an hour is to introduce Japanese language with utmost professionalism to create awareness about the bright prospects and to enhance the proficiency and commitment. It will then prove to be the ultimate path to the quest for professional excellence!

Course Objectives:

- To meet the needs of ever growing industry with respect to language support.
- To get introduced to Japanese society and culture through language.

Course Outcomes:

On completion of the course student

- will have ability of basic communication.
- will have the knowledge of Japanese script.
- will get introduced to reading , writing and listening skills
- will develop interest to pursue professional Japanese Language course.

Course Contents:

- 1 : Introduction to Japanese Language. Hiragana basic Script, colors, Days of the week
- 2 : Hiragana : modified Kana, double consonant, Letters combined with ya, yu, yo
Long vowels, Greetings and expressions
- 3 : Self Introduction, Introducing other person, Numbers, Months, Dates, Telephone numbers, Stating one's age.

References:

1. Minna No Nihongo, "Japanese for Everyone", Elementary Main Text book 1-1 (Indian Edition), Goyal Publishers & Distributors Pvt. Ltd.
2. <http://www.tcs.com> (http://www.tcs.com/news_events/press_releases/Pages/TCS-Inaugurates-Japan-centric-Delivery-Center-Pune.aspx)