

BITS E511 Computer Applications I 4

BITS E512 Computer Applications II 4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These two courses would aim at training student in skills of computer applications through examples as well as through requirement of project work. In the process, the courses are expected to create an awareness in the student's mind of computer usage in his own work setting.

Recognizing that input to the programme is unlikely to be in a narrow band, it is visualized that students for these courses will come with different levels of computer competence in their previous training, formal or informal.

Understandably, these courses will therefore aim to take that background for each student and come out with admissible and acceptable outputs in the areas of computer application.

BITS E521 Technical Communication I 4

BITS E522 Technical Communication II 4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These two courses will attempt, through examples and through project-work, to build up improved communication skills with the present technology as well as exposure to new communication technology for the student in the broad areas of his own professional orientation and aptitude.

BITS E531 Social, Behavioral and Economic Sciences I 4

BITS E532 Social, Behavioural and Economic Sciences II 4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These two courses will deal with methods and techniques through which social, behavioral and economic situations under professional settings are focussed, analyzed and used for application conditions. Various aspects thus covered would be organizational behavior, group dynamics, personnel, legal functions, government and business, managerial economics, finance, accounting and budgeting, corporate planning, project appraisals, etc. While course No. I will aim at an integrated exposure (in the context) through examples as well as through requirement of project work as drawn against the student's professional backdrop, course No. II will consist of a deeper investigation undertaken by the student in relation to the above vis-a-vis a defined problem-solving situation.

BITS E533 Modern Experimental Techniques I 4

BITS E534 Modern Experimental Techniques II 4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These courses will deal with modern experimental techniques and measurement techniques.

Students will be encouraged to use instrumental methods of analysis dealing with advanced analytical instruments in conducting their experimental work.

BITS E535 Management Methods and Techniques I 4

BITS E536 Management Methods and Techniques II 4

This is a package of two courses in sequence the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These two courses will attempt through examples and through requirement of project work, to bring to the attention of the student certain basic management concepts which are manifest in the professional setting in which the student functions. Various concepts thus covered will be planning, organizing, directing and control, production, marketing, etc. While course No. I will aim at providing an integrated exposure in the above context, course No. II will require student to undertake deeper investigation(s) in the context against well-defined situation(s).

BITS E537 Systems Science and Engineering I 4

BITS E538 Systems Science and Engineering II 4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. The attempt through these courses would be to create an awareness in the student's mind of the systems approach the aspects of micro as well as macro design in the setting of his own professional operation through examples as well as through requirement of project report(s). Thus, these courses would introduce students to methods and techniques from areas of information processing, systems analysis, systems planning and operation and systems optimization. While course No. I will introduce the student to an integrated view of the above methods and techniques constituting elements of systems science, course No. II will require him to carry out an intense investigation in the context against a defined professional situation identified in terms of his own work setting.

BITS E541 Chemical and Life Science I	4
BITS E542 Chemical and Life Science II	4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These two courses, will cover areas of Modern Biology together with Structural Chemistry and expose students to recent developments in organic and biochemistry and to certain extent developments in molecular biology. Some part of the training and exposure will deal with modern experimental techniques and measurement techniques.

BITS E543 Instrumentation Engineering I	4
BITS E544 Instrumentation Engineering II	4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These two courses will attempt through short and long projects to bring to the student's attention certain basic design and implementation concepts relating to instrumentation for better plant efficiency and modern engineering operations. The aspects, which would thus be covered, would pertain to planning and executing modernization of instrumentation in defined situations.

BITS E545 Projects and Consultancy I	4
BITS E546 Projects and Consultancy II	4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These courses would attempt to give the experience to the students in handling various types of projects and get involved in the process of consultancy. The work will encompass all factors starting with organizing the details and the scope of the project, planning of manpower and other resources, financial estimates, etc. which are to be matched with Institutional goals. The student will go through the experience of various stages of implementation of the projects including the drafting of its final report. While the course No. I will introduce the student to individual components of project/consultancy work, course No. II will aim to integrate the above knowledge for the fulfillment of ultimate objectives.

BITS E547 Public Administration I	4
BITS E548 Public Administration II	4

This is a package of two courses in sequence, the second reinforcing the contents of the first in scope or depth. Each one ends with a project report. These courses will introduce the students to the various aspects in which an administrator plays a vital role, whether it is personnel policies or financial administration or an implementation of law and this will be done through participation in a work associated with these aspects. Further, the student learns the role of an administrator in a society where planning, management and social aspirations have to be finally achieved with or without the help of a legislative/statutory solution.

Thus, the student has to involve himself in situations where decision making, coordination and supervision of various functions are the issues in an organization. While course No. I will provide the students the elements of administrative methodologies, course No. II will require him to pursue a deeper investigation in the context against defined situation(s) consistent with his professional background.

BITS E551 Physical and Mathematical	Sciences I	4
BITS E552 Physical and Mathematical	Sciences II	4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These will be analysis-oriented courses, where one has to draw heavily upon background of physics and modern mathematics. Some part of the training and exposure will deal with modern experimental and measurement techniques.

BITS E561 Use of English for Professional	Purposes I	4
BITS E562 Use of English for Professional	Purposes II	4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These courses will revolve around professional involvement of a student in the skill areas of handling English language and communication as defined in terms of technological, professional, scientific and social science situations. This package is specially designed for students who apply their training in English language in the above-defined situations to the production of technical outputs along with a group of technologists.

BITS E571 Methods of Planning and	Development I	4
BITS E572 Methods of Planning and	Development II	4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These courses would attempt to introduce the student to planning and development methods in terms of development definitions, strategies of development, mobilization of internal and external inputs for development, planning methods, factors affecting statutory administrative and financial decisions, project implementation, etc. The student, depending on his professional setting would be expected to study the above aspects of planning and development in situations of R&D, production, maintenance, social science, university development, planning & implementing new institutions and organizations, etc. While course No. I will provide the student an integrated understanding of planning and development methods, Course No. II will require him to pursue a deeper investigation in the context against defined situation(s) consistent with his professional background.

BITS E573 Study in Advanced Topics - I	5
BITS E574 Study in Advanced Topics-II	5

In this course students will be assigned study work in advanced areas of professional interest. Each student will work under the overall supervision and guidance of a faculty member and will in the end submit a project report encompassing critical review of the material studied. The organization and evaluation of the course would be achieved through seminars, group discussions, project report etc. The course will be conducted by the team of teachers who provide guidance for study work.

BITS E583 Case Studies I	4
BITS E584 Case Studies II	4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These courses using case methods of education, will introduce students to issues relating to modern technology application(s) as drawn from broad spectrum of activities. Consistent with the professional background of the student and his operational setting, these activities would be identified in terms of process plants, engineering and design organization, pharmaceutical units, science centres, R&D activities, social & service sectors, university environment; etc. Various Technological issues thus covered would range from Techno-Economic Decision to Design, Commissioning & Production to operations & Maintenance to Resource Management to Planning of Management Information System etc. While Course No. I will introduce the student to an integrated view on decision making in respect of complete cycle mentioned above, course No. II will require him to pursue a deeper investigation in the context against a defined industrial behavioral social problem.

BITS E591 Science and Technology	Development I	4
BITS E592 Science and Technology	Development II	4

This is a package of two courses in sequence, the second reinforcing the content of the first in scope or depth. Each one ends with a project report. These two courses will deal with issues relating to science and technology development. Towards this end, the method of teaching will heavily draw upon the examples as well as the requirement of project work consistent with the student's professional background. Thus, depending on the professional setting, the courses will cover various aspects of science and technology development in respect of science policy, R&D management, technology forecasting, science communication, science centres, rise of technological order, etc. While course No. I will aim at providing an integrated exposure to the student in the above context, course No. II will end up with analysis of a specific science and technology application situation for development.

BITS E593 Reading Course I	5
BITS E594 Reading Course II	5

BITS E (SKILL G) 661 Research Methodology- I 5

BITS E (SKILL G) 662 Research Methodology – II 5

These two courses, to be offered in two consecutive semesters, are designed to impart training in methodology of research such as analysis of research problems, mathematical and statistical analysis of data, computer simulation methods, experimental techniques etc. The actual contents of these course will depend upon the needs and research goals of a particular student. A project report has to be submitted by each student at the end of each course.

The organization and evaluation of these courses would be achieved through seminars, group discussions, project reports etc. The courses will be conducted by a team of teachers.

Note: All the courses in the M.Phil.(Applied) programme described above are unstructured in nature. Emphasis will be on intricate and challenging application of knowledge with which the student enters the programme rather than on formal classroom teaching.

Generally the courses come in pairs numbered I and II. The difference between the first course and the second course will be such that the second will try to build on the first to enhance either the scope or the depth. The two courses numbered I and II are to be taken in sequence in consecutive semesters. Exemption from taking the second course of any pair and providing the spacing between first and the second course can only be permitted by Dean, DLPD.

For each course (whether of a pair or independent) a student has to submit a project report before the final comprehensive examination. The evaluation and the final grading will include the performance in the project report. The very nature of these courses make it difficult to have precisely defined textbooks. Therefore, instead of textbooks there will be reference reading list.