5.3.2 M.E. in Digital Techniques and Instrumentation
The PG Course in Digital Techniques and Instrumentation is dedicated to automation which combines Digital Electronics and Control. This course deals with Microcontrollers, DSP, Advanced Processors, Reliability, VLSI, Sensors and Instrumentation. The course is supported by highly qualified faculty and equipments along with simulation software.

5.4 ELECTRONICS AND TELECOMMUNICATION ENGINEERING DEPARTMENT
The Department was established in 1972 and its first UG batch passed out in 1974. In the view of the large teledensity in the country and in the field of mobile communication and computer networks, the department started M.E. (Elx. & Telecom Engg.) program in 2003 which has special emphasis in Telecommunication technology etc. The department is equipped with the state of art equipments and has developed laboratories in the related fields. The department has close interaction with IIT Mumbai in distance education program and CISCO regional academy. The department has well established computing facilities with intranet/internet connectivity. The Department has well participated in IMPACT project supported by world bank, swiss dev. corporation (SDC) and Department of Electronics(now named as ministry of information Technology) Government of India, aimed at enhancing educational facilities to provide quality manpower.

The department has also participated in TEQIP Phase-I and also participating in TEQIP Phase –II. The department is QIP/PhD center of MHRD, Govt. of India. The Department has R&D in the field of modeling and Analysis of high speed Local Area Networks, Telecommunication, Switching Systems, Digital Signal Processing, Optical Communication, Embedded Systems etc. Many students and faculty members of the department have received young scientist and other prestigious awards. Many alumni of the Department have pursued M.tec and PhD’s studies in various IITs and abroad after securing high percentile in GATE & GRE.

5.5 ELECTRONICS AND INSTRUMENTATION ENGG. DEPARTMENT
This department came out as an offspring of Electronics Engineering due to enormous development in the field of Electronics and demand of Instrumentation Engineering at
national and international levels. M.Tech. course in Microelectronics and VLSI Design started in 2002 due to the requirement of trained manpower in the field of VLSI. Laboratories are equipped with modern sophisticated instruments procured under the World Bank project TEQUIP.

The faculty of the department is well qualified to accept the new challenges in the Electronic and Instrumentation field. Recently three candidates are awarded Ph.D. degree with department as a research center. One of the faculty member acquired Ph.D. degree from IIT. A Special Manpower Development Program (SMDP-III) Chip to System Design (C2SD) has started in the department funded by Ministry of Information and Communication Technology, Government of India.

A SMDP-VLSI Lab has been set up under this project in the department having EDA tools like Cadence, Synopsis, Mentor Graphics, Tanner, Xilinx etc. Under India chip program of SMDP project, a two stage CMOS op-amp was designed, fabricated and tested. New ventures for research and product development in area of Biomedical and Optical engineering are being setup. Faculties of department have taken training from IIT's, IISc in the area of VLSI. Students of department are performing well in different competitive exams in addition to good performance in campus placement.

5.6 COMPUTER ENGINEERING DEPARTMENT

The Department of Computer Engineering was established in 1983, the first one in the state of Madhya Pradesh and Central India. The department runs UG and PG programmes in Computer Engineering. The department has established the center for Distance Engineering Education programme (CDEEP) in collaboration with IIT Bombay in 2001. Through this programme, the department also offers video broadcast lectures by eminent teachers of IIT Bombay for PG students from time to time. In addition, the department is also a remote center for running ISTE short term training programs/workshops under NMEICT, MHRD Govt. of India from IIT Bombay and IIT Kharagpur. Department was also the remote center for Aakash project of Govt. of India through IIT B to carry out R & D activity for Aakash tablets.
Several specialized courses have been included in the PG program to focus prospective subject areas like Soft Computing, Network & Information Security, Cloud Computing, Embedded systems, Data Mining, Mobile Computing etc. The projects carried out by the PG students have been receiving applause from the industries and thus fetching good placement opportunities. Majority of the UG and PG students of the department are selected in reputed companies/organization through campus placement. The department is proud of its PG students as many of the ex-students of the department are now serving at prominent positions in reputed R & D organizations and leading industries. Department is also recognized as a QIP center for Ph. D. programme in Computer Engineering. The Department has received a fund to the tune of Rs. 50 Lac under TEQIP project (Phase I and Phase III) for setting up of the advanced labs, and modernization of existing labs etc. for M.E. programme.

5.7 INDUSTRIAL & PRODUCTION ENGINEERING DEPARTMENT

Industrial and production Engg. department was established in the year 1973, with specialized faculty in the area of Industrial and Production Engg. To run a M.E programmed in “Industrial and Production Engg.” for sponsored engineers from Industries. The programme continues till 1984 a B.E. programme in Industrial and Production and M.E programme in “Industrial Engg. and Management” was approved by govt. In the year 2003, M.E in computer Integrated Manufacturing is also started by the department. The Department is equipped with learned faculty and modern facilities. The Department has set dimensions in research. In addition to winning national level award, the faculty members have authored number of books which are popular in many engineering curricula of the country. Conducting ISTE sponsored Winter/Summer school and workshop and training programme for executives is a regular feature of the dept. The department has as exclusive reference library consisting of latest books, and videos. The department has well equipped laboratory in the area of CAD/CAM, FMS, Industrial Inspection, and Industrial Engg. and Ergonomics, Quantitative Techniques, metal cutting and machine tools, Foundry and welding. The Deptt. has well equipped workshop for imparting basic training in various trades/manufacturing processes. The Department has been continuously carrying out consultancy work in the area of production & Industrial Engg. & Management for the past 20 yrs. The deptt. has produced six Ph.Ds and published 10 books.
and more than 100 research papers. More than 200 PG Thesis in different specialization have been guided by the Deptt.

5.8 PHARMACY DEPARTMENT
The department of pharmacy (Formerly state college of pharmacy) is considered to be one of the best pharmacy schools of central India imparting need based undergraduate and postgraduate pharmaceutical education. Equipped with sophisticated research instruments and lab equipments, well qualified and experienced faculty and with a good library, computing and lab facilities it offers 4 yrs B.Pharm. Degree, 2 yrs M.Pharm. Degree in industrial Pharmacy and Medicinal and Pharmaceutical Chemistry Specialization respectively and a full time Ph.Ds Degree programme.
The faculty members of the department are actively engaged in various research projects with the financial support of UGC, AICTE, and MHRD & MPCST. Over 30 candidates have been awarded Ph.D Degree under the supervision of faculty members. The research papers published/presented by faculty members and research students in various international and national journals/conferences have been widely appreciated and some of them have been awarded by research papers/presentations. The department has maintained an excellent student placement track record throughout. The Industry Institute Partnership cell (IIPC-Pharmacy) sanctioned by AICTE to pharmacy Deptt. In the year 2004 has been actively interacting with the pharmaceutical industries for fostering industry-academia interaction for mutual benefits in various ways.

5.8.1 M.Pharm. (Medical and Pharmaceutical Chemistry)
The curriculum of this programme has been designed to impart a research based specialized education in Medicinal and Pharmaceutical chemistry. The requirements of pharmaceutical industry are given due weight age in the course contents and research projects. The major areas of current research activities include computer aided drug designing new drug discovery, prod rugs, and drug analysis.

5.8.2. M. Pharm. (Industrial Pharmacy)
This course is fully dedicated to the academic needs of pharmaceutical Industry. Knowledge of all important pharmaceutical fields is duly covered in the curriculum. The students are trained in all important areas like quality assurance, drug regulatory affairs, pharmaceutical packaging, formulation development, process development and industrial management through practical’s, seminars, and industrial projects. The Labs are equipped with all advance equipments and facilities needed for carrying out research experiments. Participation of senior experts from pharmacy industries in the course coverage and examination evaluation is a routine practice.

The major areas of current research interest are novel drug delivery system, formulation development, stability and solubility enhancement of new materials for pharmaceutical applications.
5.9 APPLIED PHYSICS DEPARTMENT
The department has been offering M.Sc(Applied physics) since 1969 and M.Tech (optoelectronics) with specialization in optical communication since 1995. The laboratories in area of lasers, fiber optics, non linear optics, optical communication and nanotechnology are among the best in the country offering M.Tech programmes. Experimental R&D labs have been developed for PhD programme.
The department has been running a no. of collaborative programmers at national level with C.A.T., Indore, B.A.R.C., Mumbai, D.A.V.V., Indore and BIRLA Institute of technology, Mesra (Ranchi) the international collaboration with the institute of physics, Humboldt University, Berlin (Germany) has been sponsored by DST, Govt. of India and DAAD, Germany, since 2003. Several research projects funded by DST, DAE, CSIR, AICTE, UGC, NPMASS, MPCST, ICMR and DBT with a large number of full time research fellows are either completed or being conducted successfully in the department. In the last six years (2006-2011), 15 Ph.D. theses have been submitted in the area of Non-linear optics and laser physics, semi-conductor Nanostructures and bulk. At present six (06) students are pursuing their PhD from the department. The research group publishes large number of research papers in leading International Journals of USA, UK, Japan and Germany.

The PG Students are encourage to take up their major project works at leading national institutes and R&D organizations like IISc, IITs, CEERI-Pilani, CSIR, Chandigarh, DRDO and RRCAT etc. The current areas of research include semiconductor Nanotechnology, Laser physics, coherent Laser spectroscopy, Nonlinear optics, Fiber Optics and Integrated Optics.

5.9.1 M.Tech.(Optoelectronics)
The programme has been designed keeping in view the national technical manpower requirement in the general area of Lasers and Optical Communication. The course offered includes subjects such as Laser Physics, Fiber Optics, Nonlinear Optics, Optical Instrumentations, Integrated Optics, Optical Network and nanophotonics. The successful students find job potentialities both in Public sector and Private Organizations including the national R&D Laboratories like BARC, CAT, DRDO, C-DOT, ISRO etc. the course contents
are continuously updated with active participation of Scientists from CAT- Indore and IIT Delhi, DAVV-Indore and IUC (DAE-CSR) Indore.

5.10 APPLIED CHEMISTRY DEPARTMENT
The department offers a post graduate programme, M.Sc.(Applied Chemistry) with two specializations i.e. Textile Chemistry and fine Chemicals & Drugs. The Laboratories of the Department are equipped with facilities / instruments to perform experiment and computational facilities with advanced chemistry software to perform molecular modeling and virtual drug design studies in pure and applied chemistry. all most all the faculty members possesses doctoral degree and are actively engaged in research work. The department also provides consultancy and takes testing of engg. materials for various industries as a part of Institute industry Interaction.

5.11 APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCE DEPARTMENT
This department offer M.Sc. (Applied mathematics) with specialization in computational science programme. The faculty of this department has set trends in perusing quality research at abstract and concrete level. A no. of research publication appears in the journal at national and international level. The field in which research is carried out in the departments are: Magnetic Fluids ,Bio-Mathematics, Continuum Mechanics, Optimization Techniques , Inventory Control, Topology, Fuzzy Sets, Network, Fourier Analysis, Summability, Fixed Point Theory, on-Linear functional Analysis, SQC., Reliability, Computational Fluid Dynamics, Special functions, variational Inequality etc. The department is running this Course since 1970 with the objective to train students for application of mathematics to engineering problems. In recent years there has been a wide spread use of computers in engineering design and scientific research. In view of this we have proposed modified syllabi of M.Sc Applied Mathematics with specialization in computer science with two fold objectives. The modified syllabi will provide in depth knowledge of the core subjects like discrete mathematics, Theory of computation, Graph theory, Fuzzy logic,
Stochastic processes etc. which are essential for fundamental research in computer science. Second objective of the course is to train students for engg. problems by simulation, Mathematical Modeling and Numerical methods using computer.

6. CENTRAL FACILITIES
The campus of the institute has amenities like a Co-operative stores, Dispensary, Bank, Canteen, Staff Quarters, Hostels, Gymnasium, Sports Complex, etc. Very soon, there will be post office inside the campus.

6.1 Central Library:
The institute has a well equipped central library with voluminous collection of 80000 books and Journals boasts of being one of the best in central India. Library is subscribing 167 International and national in print form and 120 online research journals from IEEE, IEE, ASCE, ASME, IOP, BENTHAM, SPRINGER, ELSEVIER per year. Online journals can be easily accessible from any of the nodes in the institute. Library provides the active services like in-house reading facility, reading material circulation and renewal, reference service, interloan services, information circulation and proper display of new arrivals, book bank service and photocopy service to the faculty members and the students, during its working our from 9:00 am to 9:00 pm. The internet and the online journal searching service are provided by 24 computers available in the library and also available through the campus wide networking. The library is the active member of INDEST-AICTE consortium and DELNET (Developing Library Network). The library is being computerized its all procedures, services and resources by the help of standard library application software.

6.2 Training and Placement Cell:
The Institute has a training and placement cell headed by a full-time training and placement officer (TPO). The cell arranges training programmes in the industries for the students during their vacation periods. The cell also helps the students in getting employment. It organizes campus recruitment where in several leading nationals and multinational organization participates. Additional details regarding the Cell are available at the institute's website.

6.3 Sports Facilities:
The institute provides facilities for indoor and outdoor games. The students are encouraged to participate in various sports events being organized regularly in the campus. Our students have been participating in the intercollegiate and interuniversity competitions and winning
prizes in such events. The sports facilities include Lawn tennis court, Badminton Courts, Table tennis, chess, cricket and football ground, handball, basketball etc. The institute has newly developed Gymansium with sophisticated equipments.

6.4 Hostel Facility
Institute has 4 Boys Hostels with 600 capacity and 2 Girls Hostels with 200 Capacity. Limited accommodation is available for the PG students in Institute Hostels on merit basis and as per Govt. rules.

6.5 Medical Facilities:
A registered medical practitioner is available to the student and staff for first aids and general checkups.