⫸WISDOM
NEWSLETTER

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NBA Accreditation

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Shail Group of Institutions

I⫸ST Indore Institute of Science & Technology

I⫸MR Indore Institute of Management & Research

I⫸CA Indore Institute of Computer Application

I⫸P Indore Institute of Pharmacy

From the Editor's Desk

Let me start with the abbreviation of the terms AICTE and NBA. AICTE stands for All India Council for Technical Education and NBA stands for National Board of Accreditation. AICTE was established on 1945 to plan and control technical education in areas of UG Studies in Eng. & Tech., PG and Research in Eng. and Tech., Management Studies, Vocational Education, Technical Education, Pharmaceutical Education, Architecture, Hotel Management and Catering Technology, Information Technology, Town and Country Planning. The most important thing for a student to know is that AICTE is the only organization that approves an engineering college all over the nation. AICTE recognition is mandatory before an engineering college can seek approval from state government and state technical university. Once a college gets approval from AICTE, they can affiliate themselves with state technological university for start taking students for engineering studies. If a college is not approved by AICTE their engineering degree is not valid at least in India.

As AICTE grew over a period of time, it became difficult to constantly check the quality of education in approved colleges and at the same time assess the new application for starting new engineering colleges. To overcome the problem, an autonomous body known as National Board of Accreditation (NBA) was set up in 1994 to periodically evaluate specific programmes of approved colleges and ensure that they meet requisite norms and standards. Accreditation is now based on a 1000 point scale and is an outcome based accreditation system.

Mechanical, Computer Science and Electronics & Communication programmes of Indore Institute of Science & Technology are NBA accreditated. IIST has applied for reaccreditation of these programmes and preparation for the same is full swing. It is expected that NBA team will visit us somewhere in April/May 2016. We are dedicating this issue of the News Letter to NBA Accreditation for the benefit of all.

We would like you all to join and actively contribute to your news letter and make it more colorful and informative. Your views and inputs can be sent to newsletter@indoreinstitute.com

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12 Years of Engineering a World of Change

NBA ACCREDITATION

NBA accreditation is a process for evaluating whether a programme meets specified standards of educational quality so as to assure prospective students and public that graduates of an Institution, conducting various programmes, have achieved a minimum level of competence in their chosen fields of study.

Beside quality assurance of a programme, there are other impacts of NBA accreditation system which are given below

- Encourages quality improvement initiatives by Institutions,

- Institution becomes eligible to secure necessary funds,

- Enhances employability of graduates as NBA accreditation ensures that students have requisite graduate attributes as required by industries,

- Recognition of degrees from a NBA accreditated institutions facilitates acceptance of graduates internationally,

- Motivates faculty to participate actively in academic and related Institutional / departmental activities,

- Helps create sound and challenging academic environment in the Institution, and contributes to development of the country by producing high quality technical manpower.

Guidelines of Accreditation Programmes are

- Programmes, and not Educational Institutions, will be accredited.

- Programmes from which at least two batches of students have graduated will be considered for accreditation.

- Three days onsite visit shall be a part of the accreditation process. An evaluation team appointed by the NBA will carry out the evaluation of the programme. The evaluation team consists of one/two evaluators for each programme and is headed by a Chairperson.

Accreditation offers various benefits to different stakeholders as follows:

Benefits to Institutions

a. National Board of Accreditation, India has become the permanent signatory member of the Washington Accord on 13th June 2014. This it has an international focus and acceptance across the member signatories of the accord.

b. NBA accredited Institutions are preferred by funding agencies for releasing grants for research as well as expansion etc.

c. It signifies that the Institutional performance is based on assessment carried out through a independent competent body of quality assessors, with strengths and weaknesses emanating as a feedback for policy-making.

d. NBA provides a quality seal or label that differentiates the Institutions from its peers at the national level. This leads to a widespread recognition and greater appreciation of the brand name of Institutions and motivates the Institutions to strive for more.

Benefits to Students

Students studying in NBA accredited Institutions are assured of receiving education which is a balance between high academic quality and professional relevance which has the essential and desirable features of quality professional education.

Benefits to Employers

Accreditation assures prospective employers that students coming from an institution where the content and quality have been evaluated to the satisfaction of NBA and thus the students passing out have acquired competence based on well established technical inputs.

Benefits to Industry

Industries are satisfied that the students have been imparted requisite capabilities, skills and knowledge.

Benefits to Parents

Parents are assured that their ward goes through a teaching-learning environment as per accepted good practices set out by NBA and also meets desired skill set of corporate world.

Outcome Based Criteria

Till recently NBA was based on input-output based accreditation. Now it has shifted to outcome based accreditation. Outcome based education is student centric learning method that focus on measuring student performance i.e. outcomes. Outcomes includes a range of skills and knowledge. Basically it focuses on:

a. What the students need to learn?

b. What the students should demonstrate to the Professional world?

c. Accordingly designing both curricula and delivery mechanisms(teaching strategies) to build the required skills and competence.

NBAs ACCREDITATION PARAMETERS CRITERIA

The NBA has evolved a framework of quality assurance ensuring highest degree of transparency and credibility .

Accreditation Criteria

The criteria that are considered by NBA during the process of accreditation of a programme are:

a. Institutional Mission, Vision and Programme Educational Objectives(PEOs)
b. Programme Outcome(POs)
c. Programme Curriculum
d. Students' Performance
e. Faculty Contributions
f. Facilities and Technical Support
g. Academic Support Units and Teaching-Learning Process
h. Governance, Institutional Support and Financial Resources
i. Continuous Improvement in Attainment of Outcomes

Serial	Criteria	Marks
1	Vision, Mission & Programme Educational Objectives	75
2	Programe Outcomes	200
3	Programme Curriculum	100
4	Student Performance	100
5	Faculty Contribution	100
6	Facilities & Technical Support	100
7	Academic Support Units & Teaching Learning Process	150
8	Governance & Institutional Support & Financial Resources	100
9	Continuous Improvement	75
10	Total	1000

Programme must score 60% marks in each criteria to be eligible for accreditation.

Accreditation Parameters

The parameters adopted by NBA for accreditation of programmes are called Graduates Attributes and for UG Engineering Programme they are as follows:

a. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.

b. **Problem analysis:** Identify, formulate, literature survey, and analyse complex engineering problems using first principles of mathematics, natural sciences, and engineering sciences.

c. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

d. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

e. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

f. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.

g. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

h. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

i. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

j. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

k. **Life-long learning:** Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Programme Educational Objective (PEO): PEOs of the given programme must reflect professional and career accomplishments of the graduates after 4 to 5 years of graduation; must contribute to achieve the vision and mission of the department. There is a well-defined documented process in place to quantify the attainment of PEOs.

Programme Outcome(POs): Programe outcomes define a set of achievement at the end of the programme. All the POs should contribute to a large extent to attain all the defined PEOs to the set target. The derived PO should have strong correlation with the respective Graduate Attributes.

Course Outcome(COs): Course outcomes should reflect what level of knowledge students gained, skills acquired, traits developed upon successful completion of the course. COs should contribute to attain POs in such a way that each CO should address at least one of the POs and also each PO must be reasonably addressed by adequate number of COs.

Vision, Mission of IIST and those of mechanical, computer science & engineering and electronics & communication programmes are given below:

Shail Group of Institutions | ST Indore Institute of Science & Technology | MR Indore Institute of Management & Research | CA Indore Institute of Computer Application | P Indore Institute of Pharmacy

Vision

To be a nationally recognized institution of excellence in technical education and produce competent professionals capable of making valuable contribution to the society

Mission

• To promote academic growth by offering state-of-the-art undergraduate and postgraduate programmes.

• To undertake collaborative projects which offer opportunities for interaction with academia and industry.

• To develop intellectually capable human potential who are creative, ethical and gifted leaders.

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Electronics & Communication Engineering

Vision

To produce globally competent electronics & communication engineering students with knowledge of core as well as inter discipline domains.

Mission

·Educating the students in field of electronics and communication engineering to create competent professionals with moral values, social ethics and pursuing higher education.

·Inculcating the understanding technical competence in the fields of electronics and communication engineering and implementation of theoretical concepts in practical multi-discipline scenarios.

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Computer Science & Engineering

Vision

To be a center of academic excellence in the field of computer science and engineering education.

Mission

·Strive for academic excellence in computer science and engineering through well designed course curriculum, effective classroom pedagogy and in-depth knowledge of laboratory work

·Transform under graduate engineering students into technically competent, socially responsible and ethical computer science and engineering professionals.

·Create computing centres of excellence in leading areas of computer science and engineering to provide exposure to the students on latest software tools and computing technologies.

·Incubate, apply and spread innovative ideas by collaborating with relevant industries and R&D labs through focused research groups.

·Attain these through continuous team work by a group of committed faculty, transforming the computer science and engineering department as a leader in imparting computer science and engineering education and research.

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Mechanical Engineering:

Vision

To be nationally recognised department for imparting mechanical engineering education, leading to competent engineers, capable of contributing to society through innovation, entrepreneurial and leadership.

Mission

·Imparting quality education to the students and enhancing their skills to make them globally competitive mechanical engineers.

·Ability to work as a member of interdisciplinary teams, capable of adapting to changing environments of engineering, technology and society with ethical and moral values.

·Inculcate critical thinking abilities among students and develop entrepreneurial skills, leadership qualities and innovative ideas.

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MECHANICAL ENGINEERING

PROGRAMME EDUCATIONAL OBJECTIVES

The educational objectives of the programme leading to the degree Bachelor of Engineering in Mechanical Engineering are as follows

- The graduating students from Mechanical Engineering will have a comprehensive background of sciences, mathematics and foundations of Mechanical Engineering to be able to solve application level problems related to core Mechanical Engineering and interdisciplinary areas.

- The graduating students from Mechanical Engineering will have expertise and acumen in core areas like Mechanical design, thermal engineering, materials and manufacturing science to the satisfaction of employers.

- The program orients its graduating students towards contemporary areas of socio-technological issues in order to achieve the professional development of the student.

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COMPUTER SCIENCE & ENGINEERING

PROGRAMME EDUCATIONAL OBJECTIVES

The educational objectives of the program leading to the degree Bachelor of Engineering in Computer Science & Engineering are as follows

- To provide students with a solid foundation in mathematics, computer science and engineering, basic science fundamentals required to solve the computing problems.

- To expose students to latest computing technologies and software tools, so that they can comprehend, analyze, design and create innovative computing products and solutions for real life problems.

- To inculcate in students multi-disciplinary approach, professional attitude and ethics, communication and teamwork skills, and ability to relate computer engineering issues with social awareness.

- To develop professional skills in students that prepare them for immediate employment and for life long learning in advanced areas of computer science and related fields which enable them to be successful entrepreneurs.

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ELECTRONIC AND COMMUNICATION ENGINEERING

PROGRAMME EDUCATIONAL OBJECTIVES

The educational objectives of the program leading to the degree Bachelor of Engineering in Electronics & Communication Engineering are as follows

- To develop the ability to demonstrate technical competence in the fields of electronics and communication engineering and to develop solutions to the problems in core as well as inter disciplinary areas.

- To develop graduates with sound academic background and industrial exposure which gives them capability to make a productive contribution to society through lifelong learning.

- To produce competent professionals with moral values, ethics to build an efficient team with soft skill capabilities.

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MECHANICAL ENGINEERING
PROGRAMME OUTCOMES

Programme Outcomes (PO's) of Bachelor of Mechanical Engineering are as follows:

- Apply knowledge of basic sciences (maths, physics, chemistry etc.) and engineering (core and elective subjects) in getting solutions to mechanical engineering related problems.

- Ability to identify and analyze problems of mechanical engineering including thermal, manufacturing and industrial systems to formulate design requirements.

- Ability to design, implement, and evaluate mechanical systems and processes considering public health, safety, cultural, societal and environmental issues.

- Ability to design and conduct experiments using domain knowledge and analyze data to arrive at valid conclusions.

- Ability to create, select and apply appropriate techniques, skills, knowledge and computer based methods & tools to develop mechanical systems.

- Ability to analyze the local and global impact of modern technologies on individual organizations, society and culture.

- Ability to apply knowledge of contemporary issues to investigate and solve problems with a concern for sustainability and eco friendly environment.

- Exhibit responsibility in professional, ethical, legal, security and social issues.

- Function effectively in teams, in diverse and multidisciplinary areas to accomplish common goals.

- Ability to communicate effectively in diverse groups and exhibit leadership qualities.

- Ability to apply management principles to manage projects in multidisciplinary environment.

- Pursue life-long learning as a means to enhance knowledge and skills.

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COMPUTER SCIENCE & ENGINEERING
PROGRAMME OUTCOMES

Programme Outcomes (POs) of Bachelor of Engineering in Computer Science & Engineering are as follows:

- Apply the knowledge of mathematics, science and engineering fundamentals for the solution of computer science and engineering problems.
- Ability to identify, formulate and analyze the complex engineering problems.
- Ability to design and develop the computer based systems to meet desired needs within realistic constraints such as public health and safety, environmental, agriculture, economic and societal considerations.
- Ability to demonstrate with excellent programming, analytical, logical and problem solving skills.
- Ability to use the emerging technologies, skills, and modern software tools to design, develop, test and debug the programs or software.
- Ability to include and solve the social, cultural, ethical issues with computer science and engineering solutions.
- Ability to design and develop web based solutions with effective graphical user interface for the need of sustainable development.
- Apply ethical principles and commit to professional ethics and responsibilities and norms of the computer science and engineering practices.
- Ability to work individually and as a member or leader in diverse teams to accomplish a common goal.
- Ability to communicate effectively in both verbal and written forms with engineering community and society.
- Knowledge and understanding of the engineering andmanagement principles and apply these to one's own work, as a member and leader in a team to manage the software and IT based projects in multidisciplinary environments.
- Appreciation of technological change and the need for independent life-long learning.

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ELECTRONIC AND COMMUNICATION ENGINEERING
PROGRAMME OUTCOMES

PROGRAMME OUTCOMES (PO's) OF BACHELOR OF ENGINEERING IN ELECTRONICS & COMMUNICATION ENGINEERING ARE AS FOLLOWS:

1. Demonstrate knowledge of

a. Differential and integral calculus, differential equations, linear algebra, vector calculus, complex variables, Laplace transforms, Fourier transforms, and probability and statistics.

b. Basic physics including mechanics, electricity and magnetism, and optics.

c. Basic chemistry and environmental science.

d. Basic computing.

e. Analog, digital circuit analysis and design techniques.

f. Architecture and applications of Electronics, Communications Engineering systems.

2. Identify, formulate and solve complex problems in the domains of analog/digital design, signal processing and communication engineering, reaching substantiated conclusions using first principles of Mathematics and Engineering Sciences.

3. Design/develop

a. Microprocessor/Microcontroller based systems

b. Communication and Networking systems

c. Algorithms for signal process

d. VLSI circuit components to meet desired specifications with realistic constraints such as manufacturability and sustainability.

4. Design and conduct experiments in analog/digital systems, signal processing and communication and networking systems, analyze and interpret data, and synthesize information to provide valid conclusions using simulation techniques and/or numerical methods, graphics.

5. Select and apply necessary modern electronic instruments like Digital Storage Oscilloscope, DSP and FPGA trainer kits, Microcontrollers and software tools such as Spice, MATLAB and HDL for Digital Signal Processing, Communication Engineering, Networking and VLSI engineering practices with an understanding of their limitations.

6. Apply reasoning informed by the contextual knowledge to assess societal, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional engineering practice.

7. Demonstrate the knowledge of contemporary issues in the field of Electronics and Communication Engineering.

8. Commit to professional ethics and responsibilities and norms of engineering practice.

9. Work effectively as an individual, and also as a member or leader in multicultural and multidisciplinary teams.

10. Effectively communicate on their Electronics and Communication Engineering activities, with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations.

11. Manage projects by applying gained knowledge on Engineering and Management principles.

12. Adapt themselves wholly to the demands of the Electronics and Communication related Engineering by life-long learning.

OUR TOPPERS

Mechanical Engineering Topper Student List

Antim Rewapati
IV Year

Shubham Dalal
III Year

Yashraj Contractor
II Year

Department of Civil Engineering

Prayas Jain
IV Year

Danish Khan
III Year

Pranali Dhande
II Year

Department of Computer Science and Engineering

Pooja Patidar
IV Year

Monali Panwar
III Year

Yukti Agrawal
II Year

Information Technology

Ekansh Pandit
II Year

Pooja Matre
III Year

Snehal Khanwalkar
IV Year

Department of Electronic & Communication Engineering

Anoop Kumar Verma
IV Year

Surbhi Panwar
III Year

Shubham Mandloi
II Year

Department of Management Studies

Priya Dalal
2012

Swati Mahajan
2011

Deep Singh Bhadauria
2010

B. Pharma

Harshada Bhangale
IV Year

Rupesh Solanki
III Year

Mehazabeen Kachchawala
II Year

Chemical Engineering

Tashmeer Khan
III Year

Shreyanshi Gupta
II Year

D. Pharma

Sharddha Rathore
II Year

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Implement
Achieve

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