

## **Criterion 4 - Infrastructure and Learning Resources**

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### **4.1 Physical Facilities**

#### **4.1.1 The Institution has adequate infrastructure and physical facilities for teaching- learning. viz.,classrooms, laboratories, computing equipment etc.**

Government of College of Engineering karad is situated on the banks of Krishna river popularly called pritisangam which is sangam of two rivers Krishna and koyana .The institute has eco-friendly environment, spacious classrooms, well-equipped laboratories and good infrastructure spread over 43acres.

**Classrooms:** The Institute has well-furnished, spacious and well-ventilated classrooms which are also well illuminated. Classrooms are maintained as per norms for proper visibility and audibility. The classrooms are equipped with adequate furniture, blackboard, projectors, fans, lights and power backup. The classrooms are provided with LCD projectors and LAN / Wi-Fi connectivity.

The institute has a state of art of technology and equipment to foster the educational capabilities of students. The inst. has 13 Nos. Samsung smart board with windows pre-installed with audio, video capabilities for teaching learning process. The institute has also additional 6 no's saga smart boards for the same. The laboratories are well equipped with the latest configuration equipment

GCEK has 13 Classrooms and 51 Labs.It also hosts 15 Computer Labs, 1 Mechanical Workshop and Center of Excellence - 03. All the classrooms are ICT enabled and smart board and audio video devices installed. The faculty are well trained to deliver lecture using this equipment and regular review , feedback taken from student.

**Library:-** The Library of GCEK is equipped with 2373 e-Journals, 2663 e-books Journals (e- Journals). National/International Journal Subscription - 124 Hardcopy, Total Number of Books for UG and PG 76216 in Hardcopy.

**Laboratories:** As per aicte requirements the institution has domain-centric laboratories. There are Adequate and well-maintained equipment to conduct experiments is provided. The laboratories are kept open beyond the working hours depending on the need of the students. GCEK has well- equipped Industry supported laboratories.

**Seminar Halls:** In GCEK every department has a seminar hall which is used to conduct seminars, conferences, guest lectures, and workshops for students and faculty. All seminar halls have adequate seating capacity, and these are equipped with LCD projectors, whiteboards, system with an internet facility. Web-based Teaching and Learning room. The institute has one Auditoriums equipped with one LCD projector, screens, audio systems and a computer with Internet connectivity for conducting institute functions having a seating capacity of 300.

**IT Infrastructure at GCEK:**

Institute has provided well-maintained IT infrastructure to students and faculties. Institute has Well equipped Data Center. The data centre of GCEK has High-end Cisco core switches - Cisco Catalyst 4507 provides mobility, pervasive video, collaboration, and resiliency and the resulting challenges of scale, security, and management, making it the ideal switch for campus backbone deployments. The institution has 650 computers. Every department has separate computer labs for conducting programming & simulation experiments to enhance the skills of the students. All the teaching faculties are provided with desktops and Laptops with fast Broadband and WIFI internet connectivity.

**Learning Management System (LMS):**

The institute adopted Moodle is a learning platform that is made available to students and faculties to provide Faculty and Students to create personalised learning environments. There is a dedicated server for Moodle. The moodle environment is web enabled and can be accessed anytime anywhere and accessible 24\*7. Every student and Faculty of the Institute is provided with an account for the Teaching and Learning Process.

**Facilities for Cultural and sports activities, yoga center, games (indoor and outdoor), Gymnasium, auditorium etc.**

The facility is designed to accommodate a diverse array of activities to cater to the varied interests and needs of the student community. Each segment of the facility is strategically planned to ensure maximum utilization and enjoyment by the users.

**Cultural Activities:**

**Auditoriums:** There is one air-conditioned auditoriums with capacity of 300 with area of 3000sq feet. This facility is used for various curricular and extracurricular activities. Acoustics is carefully considered to ensure clear sound during presentations and performances. Backstage facilities is also integrated for the convenience of performers and speakers

**Open Air Theatre:** The institute has multipurpose open air theater for organize college day, musical program concerts, plays drama .it can accommodate 2000 students

**PG HALL:**

There is second air-conditioned auditoriums with capacity of 200 with area of 2100sq feet. This facility is used for small cultural activities either by department or institute level.

**Yoga, Games (Indoor and Outdoor) and Sports (Gymnasium, Yoga Centre etc) :**

The college sports policy and non-evaluative credits in extracurricular activities provide adequate motivation to our student community to participate in extracurricular activities through their graduation. State of the art sports infrastructure and a well-designed annual weekly sports program sets the perfect platform for college sportsmen to participate in maximum intercollegiate sports tournaments through an academic year.

Outdoor sports facilities include a sports field, running track, and courts for basketball, tennis, and volleyball. Additionally, indoor spaces dedicated to activities such as badminton, table tennis, and indoor basketball.

**Play Ground :** The institute has the facility for Games such as football, Volleyball, Throw ball, Tennis, Handball, and Basketball .It has an area of 1800 Sq. Mtrs (60 mtrs x 30 mtrs) and a pavilion of sitting capacity 500 persons.

**Basketball Court:-**Made up of Epoxy surface and fitted with portable sports fixtures, is used for multiple sports activities and large Cultural Events.

**Volley ball court :-**The volleyball court has been developed for the students. It is regularly used by the student.

**Gymnasium:**

The gymnasium is well-equipped with space for cardiovascular exercises, weight training, and free weights. Adequate ventilation and climate control will be ensured for a comfortable workout environment.

**Yoga Centre:**

The yoga center is designed as a tranquil space conducive to mindfulness and relaxation. Natural elements have been incorporated to create a serene atmosphere, complemented by appropriate flooring and lighting. Storage for yoga mats and props is provided, offering a comprehensive environment for yoga practice.

#### **4.1.2 Percentage of expenditure excluding salary, for infrastructure development and augmentation year wise during the last five years**

4.1.2.1: Expenditure for infrastructure development and augmentation, excluding salary year wise during last five years (INR in lakhs)

Year	2018-19	2019-20	2020-21	2021-2022	2022-23
INR in Lakhs	6281097/-	9520000/-	11603124.50/-	3572548/-	3572548/-

#### ***Formula:***

$$\text{Percentage} = \frac{\text{Total expenditure for infrastructure development and augmentation excluding salary during the last five years}}{(3.1)\text{Total expenditure excluding salary during the last five years}} \times 100$$

#### **Upload the specific document as per description given below**

- Institutional data in the prescribed format (data template is merged with 4.2.2 and 4.4.1)
- Audited income and expenditure statement of the institution to be signed by CA and counter signed by the competent authority (relevant expenditure claimed for infrastructure augmentation should be clearly highlighted)

#### **Apart from the above:**

Provide Links for any other relevant document to support the claim (if any)

#### **4.2.1:- Library is automated with digital facilities using Integrated Library Management System (ILMS), adequate subscriptions to e-resources and journals are made. The library is optimally used by the faculty and students:-**

The Library uses Library Management software package which is an integrated multi-user library management system that supports all in-house operations of the Library. The Library Management software consists of modules on acquisition, cataloguing, circulation, serial control, utilities and OPAC. The database of books available in the Library is being updated on day to day basis with details of recently acquired books. It is supported by WebOPAC, Catalog maintenance, Circulation, Serial Management, Acquisition, Processing and MARC Cataloguing.

The Institute Library is using SLIM21 software developed by Algorithms Consultants Pvt.Ltd., Pune for library automation. Initially, the library implemented SLIM 3.0 in 2014 (DOS version). Then in the Year 2018 we upgraded it to SLIM4.0. Students have access to the latest availability of books and then decide upon the requirement for their use. The library also has online subscription like IEEE, Elsevier, Taylor & Francis Pearson, Springer, ASME, ASCE and several other esteemed books company which can be accessed from anywhere any time. The student can utilize these facilities seamlessly and the impact of such facility is better information, good readability and faster access to information has benefited in the overall grade and knowledge upgradation of the students. It has also helped the student, staff for quality publication and patents.

GCEK library follows the cataloguing procedure through SLIM 21 software. Enter an ISBN number of 10 or 13 digits to fetch the bibliographic information from various websites/databases like Google Books, LOC and ISBNDB etc. It fetches all information about

books along with their cover images, abstracts etc. Ultimately, it saves manual data entry efforts and the time of library staff.

Gcek library uses the Dewey Decimal Classification System.

Librarian classifies books with DDC 21 series and gives the right number to each book. Enter class number along with author mark and accession number in the book as well as in software SLIM21. Its cataloguing module is specially designed for entering multilingual data in the Unicode script. Cataloguing of Multilingual books along with English with special reference to Hindi and Marathi books has been made extensively possible by using SLIM21 Software

The circulation module provides everything that any library needs- easy front desk operations, spine label & barcode label printing.

A variety of daily transaction reports and statistics are available which helps us in understanding the usage of the library, which automatically helps us build our collection and improves staff efficiency & service standard.

WebOPAC module enables all students and faculties quick and easy access to the library resources- both physical and digital. Using simple search and advanced search options, students search library resources through OPAC in different ways are as follows:-

Along with search results, circulation details are also displayed. If any book is out of stock, then students can reserve the books online and whenever that book is available; a collection notice is sent from SLIM21. Digital contents/files (PDF, DOC, PPT, Video, Audio, etc.) are attached in support of the bibliographic record.

Moreover, it offers personalized services like checking current and previous loans, Renewing books, Check Reservation Status, and so on.

SLIM Serials Control system easily controls and maintains our library's periodicals and magazines in the most efficient way. It manages traditional and complicated subscriptions, e-databases, e-journals, Bound volumes and many more resources.

### **File Description**

- Upload any additional information  
Provide the Paste link for additional information

**4.2.2 Percentage of expenditure for purchase of books/ e-books and subscription to journals/e-journals year wise during the last five years**

4.2.2.1: Expenditure for purchase of books / e-books and subscription to journals/e-journals year wise during last five years (INR in lakhs)

Year	2018-19	2019-20	2020-21	2021-2022	2022-23
INR in lakhs	6122316/-	7264692/-	5055559/-	5089409/-	5759880/-
Percentage	76%	70%	41%	34%	50%

Total expenditure for purchase of books/e-books and

**Formula:** 
$$\frac{\text{subscription to journals/e-journals}}{(3.1) \text{ Total expenditure excluding salary during the last five years}} \times 100$$

**Upload the specific document as per description given below**

- Institutional data in the prescribed format (data template merged with 4.1.2 and 4.4.1)
- Audited income and expenditure statement of the institution to be signed by CA and counter signed by the competent authority (relevant expenditure claimed for purchase of books/ e-books and subscription to journals/e-journals should be clearly highlighted)

**Apart from the above:**

Provide Links for any other relevant document to support the claim (if any)

#### **4.3.1 :-Institution frequently updates its IT facilities and provide sufficient bandwidth for internet connection.**

The Government College of Engineering, Karad Data Center provides internet and intranet facilities to all users in the institute. For the network services, the center has the Sophos XG 430 (User Threat Management) and high end computational servers on which accounts are given to students, staff and faculty of the departments.

The Institute has an extensive fiber optic network over the whole 43 acres campus as a backbone with routed internal networks managed by Sophos XG 430.

GCE karad has developed a full-fledged campus wide network using latest technology blade Servers, rack servers, Cisco router, switches, Wireless access points and wireless controller. Overall computing facility consist of approximately 700 computing machines inclusive of desktop, laptop and workstations.

The datacenter also has Cisco 4507 Catalyst Core switch. Internet facility is provided in all 43 acres of the institute campus starting from administration building, auditorium, classrooms, lobby, all hostel (boy ,girls,PG Hostel), staff quarters. Uninterrupted 24\*7 wifi facility is provided all over the campus. The incremental development of internet bandwidth facility and its improvement is provided as below below.

The institute is started with 5mbps speed in the year 2012-13 and slowly migrated to 155Mbps in 2016-17 and now has highest capacity of 1Gbps from 2020-21 year.

The entire campus is Wi-Fi enabled with high speed of internet throughout the campus to allow students to connect anywhere in the college premises like class room, library, Auditorium, and Hostel with RUCKUS r510 series Access points Dual-band, controller-based 802.11a/g/n/ac.

Softwares running on latest technology servers are Ansys 19, Matlab 18a, Hypermesh,, SSPS, Esite, DFMA, ISM 6, Tally and other software

#### **Internet Bandwidth Up-gradation in Last 10Years**

Year	ISP Provider BSNL Bandwidth	ISP Provider NKN(Railtail) Bandwidth
2022-23	1 Gbps	100 Mbps
2021-22	1 Gbps	100 Mbps
2020-21	1 Gbps	100 Mbps
2019-20	155 Mbps	100 Mbps
2018-19	155 Mbps	100 Mbps
2017-18	155 Mbps	100 Mbps
2016-17	155 Mbps	100 Mbps
2015-16	5 Mbps	100 Mbps
2014-15	5 Mbps	100 Mbps
2013-14	5 Mbps	100 Mbps
2012-13	5 Mbps	100 Mbps

## Internet Facility Up-gradation

Year	Device Name	Specification	Use
2022-23	WIFI Access Point, Cisco POE Switch 24 port	Ruckus R 510  Cisco	For WIFI connectivity in all campus For internet connectivity
2021-22	WIFI Access Point, Cisco POE Switch 24 port	Ruckus R 510  Cisco	For WIFI connectivity in all campus For internet connectivity
2020-21	WIFI Access Point, Cisco POE Switch 24 port	Ruckus R 510  Cisco	For WIFI connectivity in all campus For internet connectivity
2019-20	WIFI Access Point, Cisco POE Switch 24 port	Ruckus R 510  Cisco	For WIFI connectivity in all campus For internet connectivity
2018-19	WIFI Access Point, Cisco POE Switch 24 port	Ruckus R 510  Cisco	For WIFI connectivity in all campus For internet connectivity
2017-18	Cisco POE Switch 24 port	Cisco	For internet connectivity
2016-17	Firewall- cisco ASA 5512 , Bandwidth Manager Cyberoam, Switch – Core Switch Campus Wide Network Project- 1.5 Cr.	Cisco Cyberoam CR500Ia Cisco 4507	Internet Management In all Campus
2013-16	Dish ,sector, Omni Antenna Switch 16 port Maskat MAK Air coral Make Bandwidth Manager cyberoam	Maskat Coral Make	-To Provide Internet connection to all campus - Use For Wi-Fi Connection in campus

### Internet leased line:

1)BSNL – 1 Gbps link

2) NKN - 100 Mbps link

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Provide the link for additional information



**4.3.2:-Student - Computer ratio (Data for the latest completed academic year)**

**4.3.2.1: Number of computers available for students' usage during the latest completed academic year:**

*Formula:*

*Number of students: Number of Computers*

*1400:700*

**Upload the specific document as per description given below**

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- Extracts stock register/ highlighting the computers issued to respective departments for student's usage.

Purchased Bills/Copies highlighting the number of computers purchased

### **4.3.3:-Institution has dedicated audio visual center, mixing equipment, editing facility, media studio, lecture capturing system(LCS) and related hardware and software for e-content development**

The institution has proposed audio, video facilities with mixing and editing facilities. The institute has proposes community radio station in the institute. The idea of community radio station is to help small marginal farmers with technical information and guidance on yield and marketing of their farm products.

Audio-Visual Center Overview:

Facilities:

Mixing Equipment: The audio-visual center is equipped with advanced mixing equipment to ensure high-quality audio production. This includes audio mixing consoles, microphones, and sound processors to facilitate professional-level audio recordings and productions.

Editing Facility: A dedicated editing facility is established with cutting-edge software and hardware. This includes video editing suites equipped with powerful computers, high-resolution monitors, and industry-standard editing software for seamless post-production work.

Media Studio: The institution boasts a media studio for the creation of multimedia content. The studio is equipped with professional lighting, green screens, and various backdrops to accommodate a range of productions, from video lectures to interactive multimedia presentations.

The audio-visual center is equipped with high-performance computers, ensuring efficient multimedia processing and editing.

Specialized hardware, such as high-definition cameras and audio recording devices, is available to capture content at the highest quality.

Cutting-edge software, including video editing suites, graphic design tools, and e-learning platforms, is provided to facilitate the creation of engaging and interactive e-content.

E-Content Development:

Purpose:

The primary purpose of these facilities is to support the development of-content for educational purposes. This includes creating multimedia-rich lectures, interactive tutorials, and engaging learning materials to enhance the overall educational experience.

Collaboration:

The institution encourages collaboration among educators, instructional designers, and multimedia specialists to create e-content that aligns with pedagogical goals and engages students effectively.

Training and Support:

Ongoing training sessions are organized to familiarize faculty members with the equipment and software available in the audio-visual center. Technical support is readily accessible to address any issues and ensure smooth content creation processes.

Conclusion: The institution's commitment to establishing a cutting-edge audio-visual center and dedicated facilities for e-content development reflects its dedication to providing a modern and engaging educational experience. These facilities empower educators to create dynamic and interactive content, contributing to the institution's goal of fostering a technologically advanced and student-centered learning environment

#### **File Description**

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Provide the link for additional information

**4.4.1:-Percentage expenditure incurred on maintenance of physical facilities and academic support facilities excluding salary component, during the last five years**

4.4.1.1: Expenditure incurred on maintenance of physical facilities and academic support facilities excluding salary component year wise during last five years

Year	2018-19	2019-20	2020-21	2021-2022	2022-23
INR in Lakhs	6281097/-	9520000/-	11603124.50/-	3572548/-	3572548/-

(INR in lakhs)

Formula:

$$\frac{\text{Total expenditure on maintenance of physical and academic support facilities excluding salary component during the last five years}}{\text{(3.1) Total expenditure excluding salary component during the last five years}} \times 100$$

**Upload the specific document as per description given below**

- Institutional data in the prescribed format (data template merged with 4.1.2 and 4.2.2)
- Audited income and expenditure statement of the institution to be signed by CA and counter signed by the competent authority  
(relevant expenditure claimed for maintenance of physical facilities and academic support facilities should be clearly highlighted)

**Apart from the above:**

Provide Links for any other relevant document to support the claim (if any)

#### **4.4.2 :-There are established systems and procedures for maintaining and utilizing physical and academic support facilities – laboratory, library, sports complex, computers, classrooms etc**

The institute has central Facilities like Mini Loading frame, universal testing Machine 60Ton and 100 Ton(UTM),compression Testing Machine 300Ton(CTM) and other Testing Facilities are available to the outsiders with nominal charges for carrying out experiments and Testings. however, the preference is given to the students and Faculties of GCEK while fixing the appointment.

For placement activities whenever computer labs, auditorium etc. are required are made available on advance booking and on a priority basis.

Classrooms are also made available for academic or extracurricular activities out of office hours.

The Institute has a committee called Building Works Committee (BWC) which is established at institute level which comprises of members of different departments who periodical take requirements and decide the work on priority basis on construction or maintenance of civil works. The Committee oversees the work and completes it as per the need and requirement.

General maintenance is handled by a second cell called the Maintenance Cell. BWC work committees exist within GCEK. The team is in charge of maintaining the cleanliness of the campus's grounds facilities, classrooms, labs, furniture, seminar rooms, conference rooms, staff and student hangout areas etc. The maintenance of elevators, water coolers, water purifiers, rainfall catchment basins, sewage treatment, firefighting and fire alarm systems, pest control, and other amenities are also managed by the cell. Daytime housekeeping services are provided and are subcontracted annually. Periodic site inspections are conducted by the team leader and based on the condition of the location, alterations are advised for jobs like civil work and electrical work

The department heads send reports to the management on a regular basis regarding the care of the physical facilities. Prioritization and recording of minor repairs are done in an office-based ledger. Students utilise each classroom to its fullest potential during the school day while also learning how to care for the facilities. To ensure that the lights and fans switch off if there is no activity inside, infrared motion sensors are installed in every classroom. A report must be generated each month, and these sensors must be frequently inspected. Concerns about the physical facilities are handled by the maintenance cell, which is directed by a professor from the civil engineering department. Email, among other methods, can be used to register complaints.

A generator in the GCEK is in charge of maintaining a steady supply of electricity throughout the entire campus. The group is under the direction of the department head of electrical engineering. The department also employs teachers and support staff to maintain track of the maintenance of generators, lighting loads, solar power, etc. A third company is entrusted with the maintenance of the generators, and the third party performs routine inspections to guarantee the generators are in good working order.

The GCEK has a Datacenter to handle the maintenance of computers and other peripherals. The team is led by a coordinator (professor) from the Information Technology department, who is assisted by support staff. Replace or repair computers and accessories, install and upgrading software, maintain Wi-Fi, updating hardware, and doing other maintenance jobs are all examples of maintenance tasks. Regular inspections are conducted by the support staff of all departments, and the status of all computers and related equipment is sent to the computer center each month for any

necessary corrective work.

The physical education department, which is led by a physical education trainer and supportive personnel, is in charge of maintaining the sporting facilities. The department performs routine maintenance on the sports field either internally or through a third party.

The maintenance of the library is the responsibility of the librarian and his support team. The library regularly does internal audits to make sure the condition of the books. In order to understand the needs of the professors and students and take the proper action to meet those needs, the librarian frequently engages with both groups.

The institute has also an Infrastructure Committee which takes care all the facilities in the campus for laboratories, classroom and Sports Complex. The committee accepts complaints, request regarding their infrastructure requirement of classrooms and Laboratories and sports complex, the compliance is carried out as per the request complaint register. The Meetings are conducted on regular basis and the work needed or required is carried out on regular basis.

Describe policy details of systems and procedures for maintaining andutilizing physical, academic and support facilities within a maximum of 500 words

### **File Description**

- **Upload any additional information**  
**Provide the link for additional information**