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Non-conventional Manufacturing using the EDAS Method

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Abstract. A process that uses mechanical energy is conventional machining. Alternative energy sources are used by unconventional machines. In non-conventional machining, the three main types of energy are thermal, chemical, and electrical. non-standard machining, also referred to as modern machining, is a machining technique that removes, deforms, and modifies the properties of materials such as plates by utilizing electricity, energy types include electromagnetic energy, bio fuels, acoustic energy, electrochemical energy, and thermal energy. Tools and work pieces are in direct touch during conventional machining procedures. The tool and indeed the work piece do not have to come into physical contact for non-traditional machining procedures to work. The distinctions between conventional and non-conventional machining processes are examined in this article. The lead phase is typically coated using a paste made from a combination of lead & lead oxide powder, additives, and the necessary amount of acid and water after the sulphated mixture has been reduced to a fine lead mass to achieve the requisite density. On the other hand, non-conventional machining uses the most recent and cutting-edge processing technologies. No materials or machine tools come into contact with each other throughout this operation. Electric beam, electric arc, plasma cutting, and infrared beam are a few examples of non-conventional tools in use. Complex forms can be machined using those atypical machining techniques, in part due to the utilisation of cutting-edge CNC technology. The usage of these procedures is frequently determined by the material's shear strength, for instance, when wear resistant alloys and special combinations are involved. In order to create complicated and exact shapes in materials like titanium, stainless steel, high-temperature short (HSTR) alloys, jute composites, ceramics, refractories, and other hard materials, nontraditional machining (NTM) procedures are now often used. The goal of the current investigation using mechanical composites is to ascertain its effect. Brazilian consumers' food purchase intentions are influenced by a variety of manufacturing techniques, brands, prices, and labels. high-grade vegetable oils. Solvents, which may be hazardous, are used in conventional manufacturing processes. The environment suffers as a result. Change Manufacturing procedures, which don't require solvent use might necessitate the use of cutting-edge technologies like plant genetic engineering. looking into the use of genetic modification utilised in food production has a greater potential for reducing environmental effect. The EDAS score primarily based on the space from the suggest agreement machine is the installed energy for a manufacturing plant. Experts' critiques and derived numbers do not trust each different concerning solar energy and geothermal electricity. Traditional, Genetic engineering, High, Sunflower and Green globe. Smart Restaurant, Restaurant Automation, Device-to-Device Communication, Near Field Communications based, Smart Cities and Cloud Computing. Non-Conventional Manufacturing. Green globe is got the first rank whereas is the Sunflower is having the Lowest rank. Non-Conventional Manufacturing. Green globe is got the first rank whereas is the Sunflower is having the Lowest rank.

Keywords: MCDM, Traditional, Genetic engineering, High and Sunflower

1. INTRODUCTION

In the sense of the quantity for a specific load capacity of energy, flexural resistance is particularly ideal for lightweight, high-performance components made using unconventional technologies (hydroforming and metal foams). In order to compare the effectiveness of small overlap, absorbers made of various materials and cross-sections, a performance indicator called y was devised. For fixed section bars in particular, the tube hydroforming process has been looked into as a potential means of improving the effectiveness of metal foam filled structures under side impacts [1]. Industrial complexity, industrial leanness, and industrial agility are three non-traditional performance indicators that are suggested for and used in the delivery of non-conventional significant industrial strategy (NCCMS). Key goals include reducing complexity and boosting leanness and agility. These performance metrics implicitly incorporate non-traditional manufacturing strategy, traditional competitive measures, and strategic and tactical performance metrics (Pakdil and Leonard, 2014). Creating and maintaining A challenge for businesses implementing lean manufacturing is getting long-term commitment through management to across the entire workforce, from conventional production models (such mass

production) to new models (e.g., mass customization). One of the most popular lean models in the world is called The Manufacturing (TPS) [2]. The 15% reduced weight of non-traditional laminates emphasizes the possibility of weight reduction. The buckling load of the sample panel cannot be matched with only variable stiffness of variable thickness, as demonstrated experimentally. But when the two were combined, a 15% lighter panel was shown to have a 10% higher buckling load. This demonstrates the versatility of unusual laminates. These findings demonstrate the advantages non-conventional laminates have over conventional laminates built using solely conventional fiber angles for lightweight structural construction. Future research will examine if the finding is equally valid for more complex systems, different stress conditions, and different structural responses [3]. Such technological development substitutes contentious technology that has the potential to damage the environment for conventional manufacturing techniques. Consumer acceptance with genetically modified products was looked into in the current study. According to this study, genetic modification could lessen the environmental damage caused by more conventional, alternative production techniques. The investigation included details regarding the production process as well as the influence of additional variables on consumer decision-making, such as brand and reduced price [4]. Unusual species that are compatible genetically with industrial production include Coli Yarrow lipolytic for the synthesis of lipids and carotenoids, glutamic for the TCA cycle-derived manufacturing pathway, and cyanobacteria for the creation of sugar, phosphate, and carotenoids and Patho coccus through photosynthetic means. the capacity to convert biomass from renewable feedstocks. We conclude by talking about new technologies that could help create unique cell factories including single-cell methods, genetic structure sequencing, and information theory [5]. species that are unconventional and genetically compatible for use in industrial production using abrasive water jet, laser cutting, and electro discharge machining (AWJ). With these various machining methods, the permanent features of the composite material are researched and compared. Using experiments on samples of unreinforced matrix material, the impact of ceramic particle reinforcement on performance characteristics was examined. In order to achieve cost-effective machining, higher reaction reliability, and uniformity, it is necessary to find the "optimal" machining settings, it is important to explore non-traditional machining methods in greater detail. This study documents an experimental test programmed using Sic ceramic particulate reinforced aluminum alloy matrix composites with EDM, laser, and AWJ machining [6]. In rare yeasts, the ascus wall spontaneously dissolves, allowing for the dissection of the spores without the requirement for enzymatic preparations. As was already indicated, colonies of irradiation cultures are checked for division, altered color or colony morphology, or auxotrophic needs. Non-sperm Yeasts are additionally appropriate for genetic research using the mutant cycle, mitotic exchange, and or other means. Some type of detection method that identifies the existence of enhanced strains is a crucial necessity for doing so [7]. We offer a novel sinus antenna. By utilizing antenna shrinking techniques, the design as well as optimization attempted to decrease its power consumption while maintaining its physical size. To enhance antenna performance, a specific combination a proper tuning of the antenna structure and the use of high-contrast materials have been adopted. a typical sinusoidal cavity-supported antenna used in RESM applications. It operates throughout a frequency spectrum of three octaves, from 1.5 GHz to 18 GHz. Through the use of creative design, a sinusoidal exponential growth profile, and no uniform dielectric layers put into the metal cavity, the radiating element has now been improved through downsizing approaches. In the operating frequency band, the output of the simulation displays strong directed patterns, substantial realized gain, and good polarization purity. [8]. In the generation of protein-based goods, the use of genetically modified microorganisms in industry has been quite successful (such as antibodies and enzymes). Engineering microbe heroes of the underdog something like the bio production of industrial chemicals is still difficult, though. First, a number of enzymes necessary for the formation of acids as well as carotenoids, cyanobacteria's ability to produce photosynthetic material from its sugar phosphate routes, and Rhod coccus' capacity to transform raw materials into biomass cannot be tolerated by microorganisms. We conclude by talking about new technologies that could help create unique cell factories, such as single-cell methods, genome-to-phenome linking, and knowledge engineering [9]. Metaheuristics are one example of an unconventional technique that is typically dependent on non-mathematical information. a decision-making assistance that is non-real time. For implementations in quell multi-part reconfigurable production lines, a About seventeen (27) minutes may be required for the solution deemed adequate for creating an ideal manufacturing process design. The findings demonstrate that the SA algorithm is capable of recommending the best manufacturing process design for a certain production scenario. When compared to a software approach, the SA technique demonstrated considerable advantages in obtaining solutions [10].

2. MATERIALS AND METHOD

Traditional: Traditions explain the ideas and practices of a community that are inherited from one generation to another, which is the main distinction between tradition and culture. A group's collective traits that have developed over time are referred to as its culture. Based on a long-standing habit, style, or custom, something is considered traditional. The custom of eating turkey as part of the standard or recognized Thanksgiving meal is an example of tradition. The word tradition is derived from the Roman trade, which means to send, to hand over, or to provide. An example of a tradition is a formal style of upholstery, which is a tradition that does not alter in gloss or seasons and can survive and evolve through thousands of years. to protect.

Genetic engineering: Genetic engineering, often known as genetic mutation, is a process that uses technologies created in labs to change an organism's DNA. Changes are made to A-D or C-G base pairs, a DNA segment is removed, or new DNA is added segment is added. a week ago, DNA recombinant A synthetic DNA molecule is used in recombinant DNA

technology, a subset of genetic engineering. Physical procedures are used to create two distinct DNAs. For that, experiments involving gene transfer use a plasmid vector with the desired gene introduced into it.

High: high score (high scores in plural) (video games) The pass mark or scores in a specific game, which are frequently listed in high score tables. The word "high" can refer to a state of mind, typically a joyful one. It can also be used to describe other natural states of happiness, such as "I'm high," in addition to a drug-induced euphoric state. She raised you, but you're not aware of it yet.

Sunflower: Sunflowers represent faith because of the Clytes and Apollo tale. Sunflowers are also well renowned for being a cheery bloom and the ideal flower for a summer flower delivery to lift one's spirits because of its connection to the sun. Little flowers make up each head of a sunflower. The petals that are visible outside are known as ray flowers and are one-offs. The disc flowers, however, have both male and female sex organs, and each one of them delivers a single seed.

Green globe: Green Globes' environmental goals include lower water and energy costs, fewer emissions, the best possible health and wellness advantages, and less waste. For the travel and tourist sector, Green Globe 21 is a global certification programme for environmental and social sustainability. By putting Agenda 21 into practise, it collaborates with customers, businesses, and communities to create a sustainable industry.

Information: Communication is a stimulus whose makes sense to its receiver in a particular setting. Data is the term used to describe information that has been entered into and saved on a computer. The processed output data can once again be interpreted as information after formatting and printing. It is a compilation of structured data for the immediate benefit of mankind because the data aids people in making decisions. Examples include the following: the timetable, the merit list, the report card, the heading tables, print materials, charge slips, receipts, and reports.

Price: Price is the sum spent to receive a particular good. Insofar as the price people are prepared to pay for a thing expresses its value, price is likewise a measure of value. Pricing is the worth or amount of money that clients exchange for a certain offer that satisfies their needs and wishes. Use the following equation to determine the selling price of your product: Selling Price = Cost Price + Profit Margin. Profit margin is a portion of the cost price, whereas cost price is the amount a retailer spent for the good.

Illustration: Illustration would be the act of giving examples to explain information or concepts, typically in the form of a picture. Illustrations might take the form of images, sketches, schematics, or charts. A visual decoration, explanation, or depiction of a text, concept, or procedure that is intended to be incorporated into print and digitally produced media, such as posters, leaflets, magazines, books, teaching materials, animations, electronic games, and movies, is called an illustration. Illustration majors tell stories through their artwork. Illustration enthusiasts are more interested in learning how to make specific images than graphic designers are in the whole appearance of a piece, including colours, typefaces, and layouts.

Brand: A brand is a good or concept that can be easily identified and differentiated from similar ones in the public eye for the purpose of marketing and communication. In branding, a brand name, its qualities, and personality are developed and communicated. A product or service can be differentiated from the competition by its brand, which communicates its USP or differentiator. Using logos, taglines, jingles, or symbols are a few examples of branding tactics. A brand typically has elements such as a name, tagline, logo or symbol, design, brand voice, and others. a crucial element in branding is brand identity, which focuses on the character and values of your company. particular visuals.

Method: The EDAS score primarily based on the space from the suggest agreement machine is the installed energy for a manufacturing plant. Experts' critiques and derived numbers do not trust each different concerning solar energy and geothermal electricity. Although solar strength is a renewable power source, it's miles the desired electricity supply by professionals due to Access and giant availability characterization (2d in Fuzzy AHP space) however numeric Physically damaging electricity due to high set up cost (4th area in EDAS). And low performance [11]. EDAS is a powerful approach for multi-standards stock type and dealer choice, and it can be effectively carried out to a few conflicting standards. In this method, essential measures are considered, i.E. Positive distance from imply (PDA) and bad distance from imply (NDA). These measures can monitor the distinction among every opportunity and the suggest answer [12]. EDAS is subtle, from average response amazing distance, every from the alternative recommendation solution Terrible distance too Calculates based on the criteria type. (advantage vs. Price). Third, the proposed method Evaluation of each opportunity calculates the score and uses the CVPFRS model assess every opportunity through Usual Appraisal Value. Later on A full assessment of alternatives We get EDAS approach a rating for everything calculates the estimate options and ranks the options in step with decreasing values of the evaluation score [13]. Hydrogen mobility roll-up alternatives EDAS methods for assessment are used This MCDM Methods help calculate a smoothness rating and rank every opportunity The ideal is contradictory in nature Hydrogen Mobility Roll-up to choose an alternative. every and the method is its strength and obstacles [14]. EDAS approach is proposed for their stock category. The top notch benefit of EDAS Compared to other methods for class, it has greater correct performance and Fewer math calculations. EDAS in, each of the evaluation of alternatives Appreciate the scale as well a form standard solution Depends on the location of the character replacement, introducing a prolonged EDAS technique for figuring out providers. strong waste for removal in determining the site, EDAS-based totally instinct counselled a fuzzy model. In this study, EDAS changed into incorporated to analyse boundaries to RE improvement [15]. Application of EDAS technique in MAGDM. Firstly, Basic definition of projects and distance method Briefly advocated. Next, amplified EDAS The approach is classical underneath real context Inspired by means of the EDAS method [26]. EDAS method Solving the MCDM hassle with inverse houses an original and green device to resolve. AVS to prioritize choices uses and strong waste disposal web site PDA and NDA EDAS technique for evaluation used prolonged the EDAS

version [17]. EDAS technique for MCGDM. Also, EDAS compiles a few algorithms for neutrosophic easy selection making. It is clear that EDAS has obtained a whole lot attention from pupils, however in view of those arguments and motivations there is no work that extends EDAS to q-Rung [18]. To solve problems related to MCDM EDAS is a brand new system Can be used as a framework This is a review of the literature revealed that prime time to use a prolonged EDAS model based totally on the proposed intuitive parametric difference measures. Furthermore, it is empirical Sanitary disposal approach It helps to fix the selection problem for evaluating opportunity sanitary First time waste disposal techniques to ensure stability of results for the proposed approach Evaluation is done between some current techniques to demonstrate the validity of the consequences done [19]. The EDAS method has been prolonged to the DHHFL framework for 0 carbon operations to allow Indian Smart Cities Their carbon footprint is significant reduce in size via manner of 2050. EDAS Completely distance based The ranking technique is the average using parameters Sweet and nadir statistics factors [20]. EDAS is developed among the best and most popular MCDM methods, however, EDAS method is the best alternative [21]. EDAS Methodology for Supplier Selection. However, to the satisfactory of our expertise, no take a look at of the MADM problem primarily based on the EDAS approach has been reported within the current academic literature. Therefore, the usage of EDAS in MADM is a thrilling research subject matter to rank and determine the pleasant opportunity below a unmarried-valued neutrosophic clean environment [22]. EDAS (Estimation distance from the mean solution based) method A new and It is an efficient technique It is proposed and carried out to stock type problem. Validated the effectiveness of the EDAS method through comparing it with some different MCDM techniques. A fuzzy extension of EDAS is proposed) and applied to the provider selection trouble. Also, developed an intuitive EDAS method and carried out it to stable waste disposal web site selection. Proposed a few algorithms for gentle selection making with neutrosophic units based at the EDAS approach [23]. An EDAS A method for allocating orders is suggested, taking dealer evaluation and context into consideration. To evaluate suppliers who adhere to environmental norms, some EDAS approach steps and IT2FS mathematical functions are applied. This evaluation approach yields two factors for each supplier: negative scores and effective ratings. To compute the order quantity from each supplier, multi-goal linear programming is developed using purchase expenses and fixed parameters. With this multi-objective model, we resolve it using fuzzy programming [24].

3. RESULTS AND DISCUSSION

TABLE 1. Non-conventional Manufacturing

	Information	Price	Illustration	Brand
Traditional	55.06	150.39	36.05	22.05
Genetic engineering	40.05	142.97	33.69	27.30
High	67.05	122.58	29.18	23.10
Sunflower	50.00	155.36	50.00	50.00
Green globe	45.36	140.50	24.60	17.59
AVj	51.50400	142.36000	34.70400	28.00800

Table 1 shows the Non-Conventional Manufacturing using the Analysis method in EDAS. Traditional, Genetic engineering, High, Sunflower and Green globe in alternative value. Evaluation parameters in Information, Price, Illustration and Brand is seen all Average in Value.

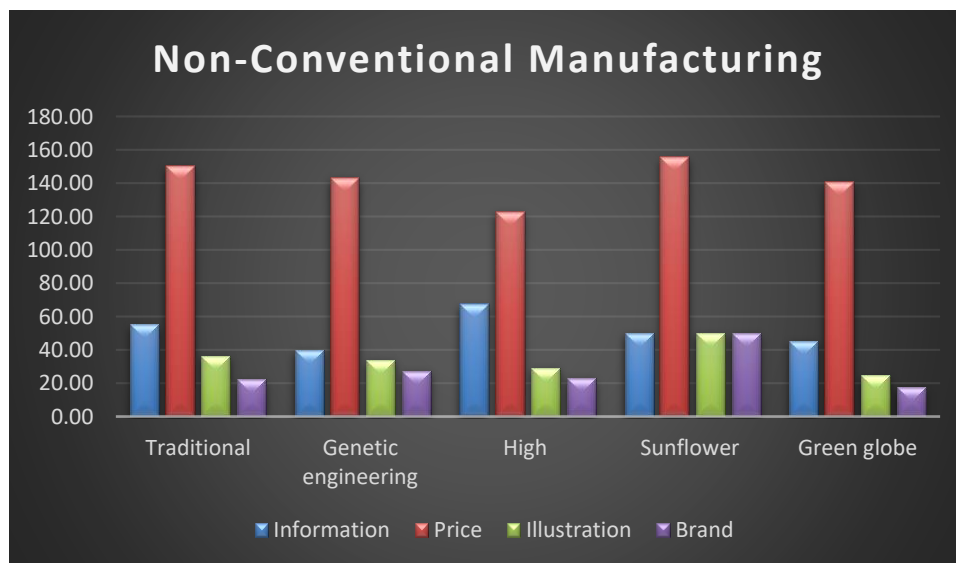


FIGURE 1. Non-Conventional Manufacturing

Figure 1 shows the shows the Non-Conventional Manufacturing using the Analysis method in EDAS. Traditional, Genetic

engineering, High, Sunflower and Green globe in alternative value. Evaluation parameters in Information, Price, Illustration and Brand it is seen that High is showing the Highest Value for Information and Genetic engineering is showing the lowest value. Sunflower is showing the Highest Value for Price and High is showing the Lower value. Sunflower is showing the Highest Value for Illustration and Green globe is showing the lowest value. Sunflower is showing the Highest Value for Brand and Green globe is showing the lowest value.

TABLE 2. Positive Distance from Average (PDA)

	Positive Distance from Average (PDA)			
Traditional	0.07	0.06	0.00	0.21
Genetic engineering	0.00	0.00	0.03	0.03
High	0.30	0.00	0.16	0.18
Sunflower	0.00	0.09	0.00	0.00
Green globe	0.00	0.00	0.29	0.37

Table 2 shows the Positive Distance from Average (PDA) in Non-Conventional Manufacturing using the Analysis method in EDAS Analysis, Traditional, Genetic engineering, High, Sunflower and Green globe in alternative value. Evaluation parameters in Information, Price Illustration and Brand is seen all Maximum Value.

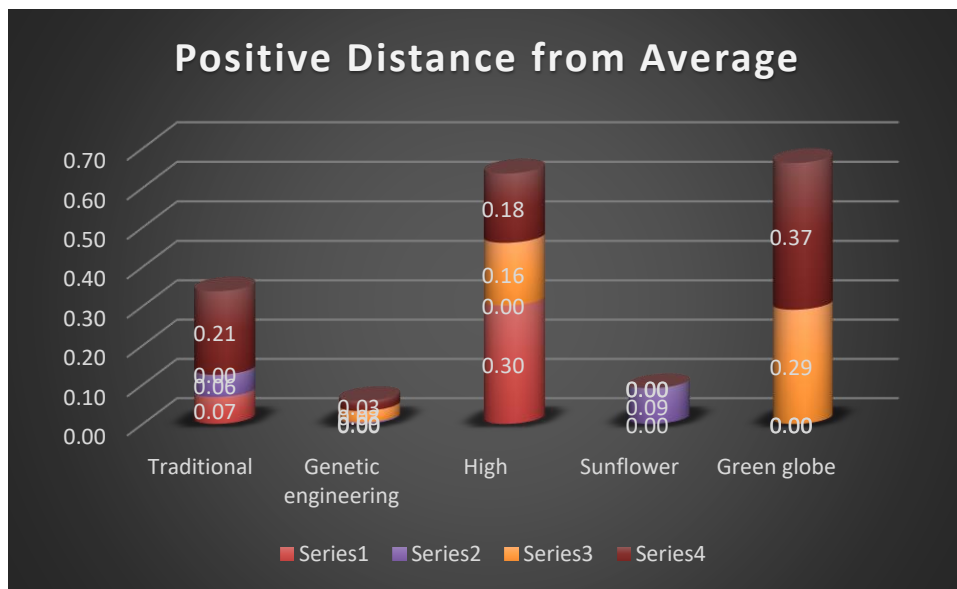


FIGURE 2. Positive Distance from Average (PDA)

Table 2 shows the Positive Distance from Average (PDA) in Non-Conventional Manufacturing using the Analysis method in EDAS Analysis, Traditional, Genetic engineering, High, Sunflower and Green globe in alternative value. Evaluation parameters in Information, Price Illustration and Brand is seen all Maximum Value.

TABLE 3. Negative Distance from Average (NDA)

	Negative Distance from Average (NDA)			
Traditional	0.00000	0.00000	0.03879	0.00000
Genetic engineering	0.22239	0.00000	0.00000	0.00000
High	0.00000	0.13894	0.00000	0.00000
Sunflower	0.02920	0.00000	0.44076	0.78520
Green globe	0.11929	0.01307	0.00000	0.00000

Table 3 shows the Negative Distance from Average (NDA) in Non-Conventional Manufacturing using the Analysis method in EDAS Traditional, Genetic engineering, High, Sunflower and Green globe in alternative value. Evaluation parameters in Information, Price Illustration and Brand is seen all Maximum Value.

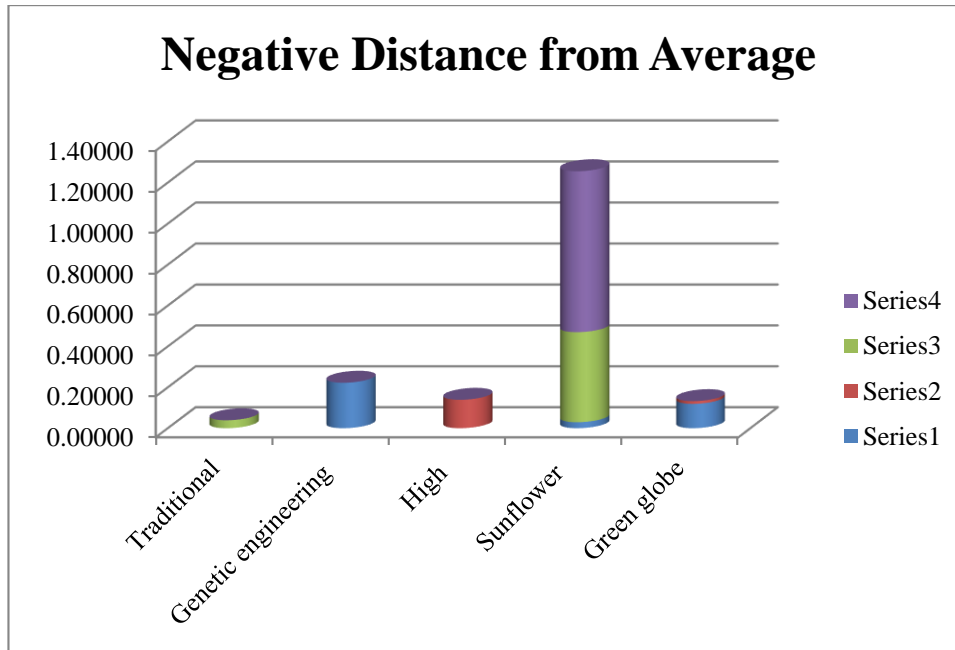


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TABLE 4. weightages

Weightages			
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25

Table 4 shows the Weightages used for the analysis. We take same weights for all the parameters for the analysis

TABLE 5. Weighted PDA SPi

Weighted PDA				SPi
0.01726	0.01410	0.00000	0.05318	0.08454
0.00000	0.00107	0.00730	0.00632	0.01470
0.07546	0.00000	0.03979	0.04381	0.15906
0.00000	0.02283	0.00000	0.00000	0.02283
0.00000	0.00000	0.07279	0.09299	0.16578

Table 5 shows the Weighted PDA SPi in Non-Conventional Manufacturing using the Analysis method in EDAS Analysis is shown the Table 2 and Table 4 in Multiple Value. Traditional, Genetic engineering, High, Sunflower and Green globe in alternative value. Evaluation parameters in Information, Price Illustration and Brand is seen all Multiple Value.

TABLE 6. Weighted PDA SPi

Weighted NDA				SNi
0.00000	0.00000	0.00970	0.00000	0.00970
0.05560	0.00000	0.00000	0.00000	0.05560
0.00000	0.03474	0.00000	0.00000	0.03474
0.00730	0.00000	0.11019	0.19630	0.31379
0.02982	0.00327	0.00000	0.00000	0.03309

Table 6 shows the Weighted PDA SPi in Non-Conventional Manufacturing using the Analysis method in EDAS Analysis is shown the Table 3 and Table 4 in Multiple Value. Traditional, Genetic engineering, High, Sunflower and Green globe in alternative value. Evaluation parameters in Information, Price Illustration and Brand is seen all Multiple Value.

TABLE 6. Final Result of Non-Conventional Manufacturing

	NSPi	NSPi	ASi	Rank
Traditional	0.50998	0.96910	0.73954	3
Genetic engineering	0.08865	0.82282	0.45573	4
High	0.95949	0.88930	0.92440	2
Sunflower	0.13771	0.00000	0.06886	5
Green globe	1.00000	0.89455	0.94727	1

Table 6 shows the Final Result of Non-Conventional Manufacturing using the Analysis for EDAS Method. NSPi in Non-Conventional Manufacturing is calculated using the Green globe is having is Higher Value and Genetic engineering is having Lower value. NSPi in calculated using the Traditional is having is Higher Value and Sunflower is having Lower value. ASi in calculated using the Green globe is having is Higher Value and Sunflower is having Lower value.

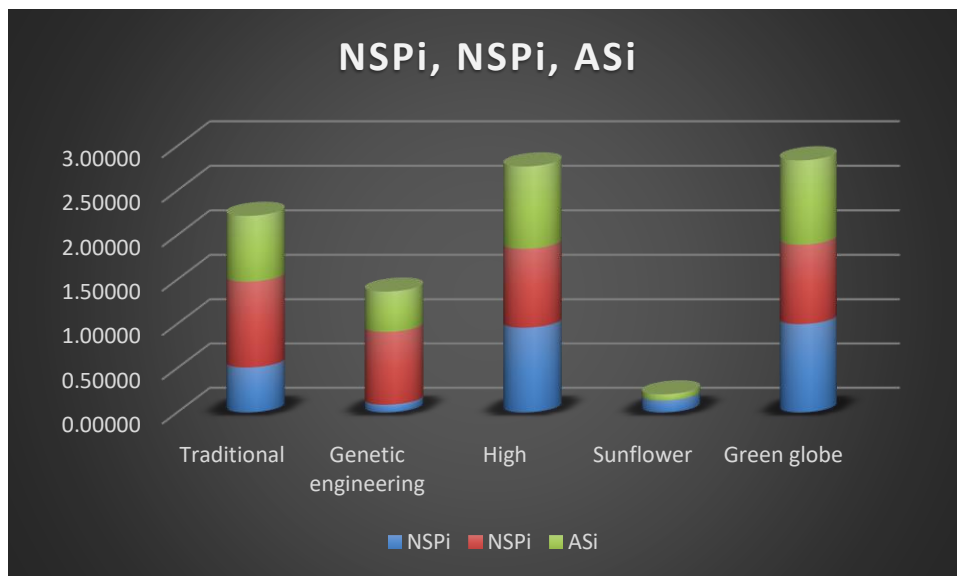


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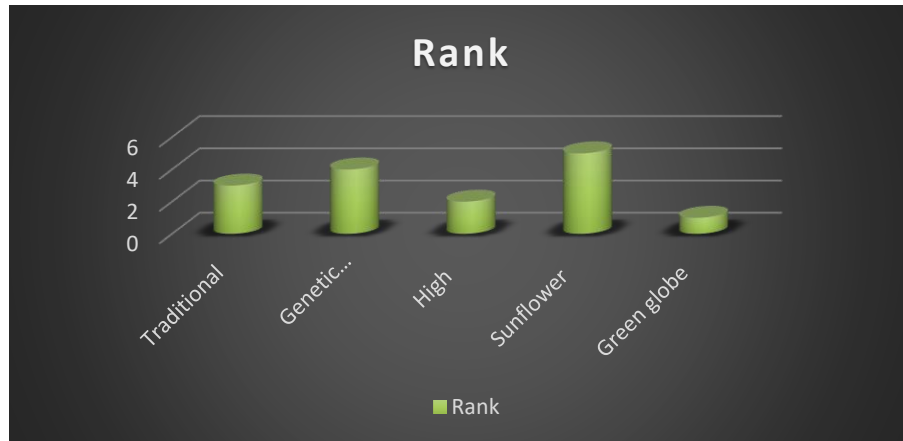


FIGURE 5. Shown the Rank

Figure 5 Shows the Ranking for Non-Conventional Manufacturing. Green globe is got the first rank whereas is the Sunflower is having the Lowest rank.

4. CONCLUSION

A process that uses mechanical energy is conventional machining. Alternative energy sources are used by unconventional machines. In non-conventional machining, the three main types of energy are thermal, chemical, and electrical. non-standard machining, also referred to as modern machining, is a machining technique that removes, deforms, and modifies the properties of materials such as plates by utilising electricity, energy types include electromagnetic energy, bio fuels, acoustic energy, electrochemical energy, and thermal energy. Tools and work pieces are in direct touch during conventional machining procedures. Complex forms can be machined using those atypical machining techniques, in part due to the utilisation of cutting-edge CNC technology. The usage of these procedures is frequently determined by the material's shear strength, for instance, when wear resistant alloys and special combinations are involved. In order to create complicated and exact shapes in materials like titanium, stainless steel, high - temperature short (HSTR) alloys, jute composites, ceramics, refractories, and other hard materials, nontraditional machining (NTM) procedures are now often used. In the sense of the quantity for a specific load capacity of energy, flexural resistance is particularly ideal for lightweight, high-performance components made using unconventional technologies (hydroforming and metal foams). In order to compare the effectiveness of small overlap absorbers made of various materials and cross-sections, a performance indicator called γ was devised. Traditions explain the ideas and practices of a community that are inherited from one generation to another, which is the main distinction between tradition and culture. A group's collective traits that have developed over time are referred to as its culture. Based on a long-standing habit, style, or custom, something is considered traditional. Genetic engineering, often known as genetic mutation, is a process that uses technologies created in labs to change an organism's DNA. Changes are made to A-D or C-G base pairs, a DNA segment is removed, or new DNA is added segment is added. high score (high scores in plural) (video games) The pass mark or scores in a specific game, which are frequently listed in high score tables. Sunflowers represent faith because of the Clytes and Apollo tale. Sunflowers are also well renowned for being a cheery bloom and the ideal flower for a summer flower delivery to lift one's spirits because of its connection to the sun. Little flowers make up each head of a sunflower Green Globes' environmental goals include lower water and energy costs, fewer emissions, the best possible health and wellness advantages, and less waste. Communication is a stimulus whose makes sense to its receiver in a particular setting. Data is the term used to describe information that has been entered into and saved on a computer. The EDAS score primarily based on the space from the suggest agreement machine is the installed energy for a manufacturing plant. Experts' critiques and derived numbers do not trust each different concerning solar energy and geothermal electricity. Traditional, Genetic engineering, High, Sunflower and Green globe. Smart Restaurant, Restaurant Automation, Device-to-Device Communication, Near Field Communications based, Smart Cities and Cloud Computing Non-Conventional Manufacturing. Green globe is got the first rank whereas is the Sunflower is having the Lowest rank.

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